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THE ULTIMATE AMIGA BUYER'S GUIDE '94

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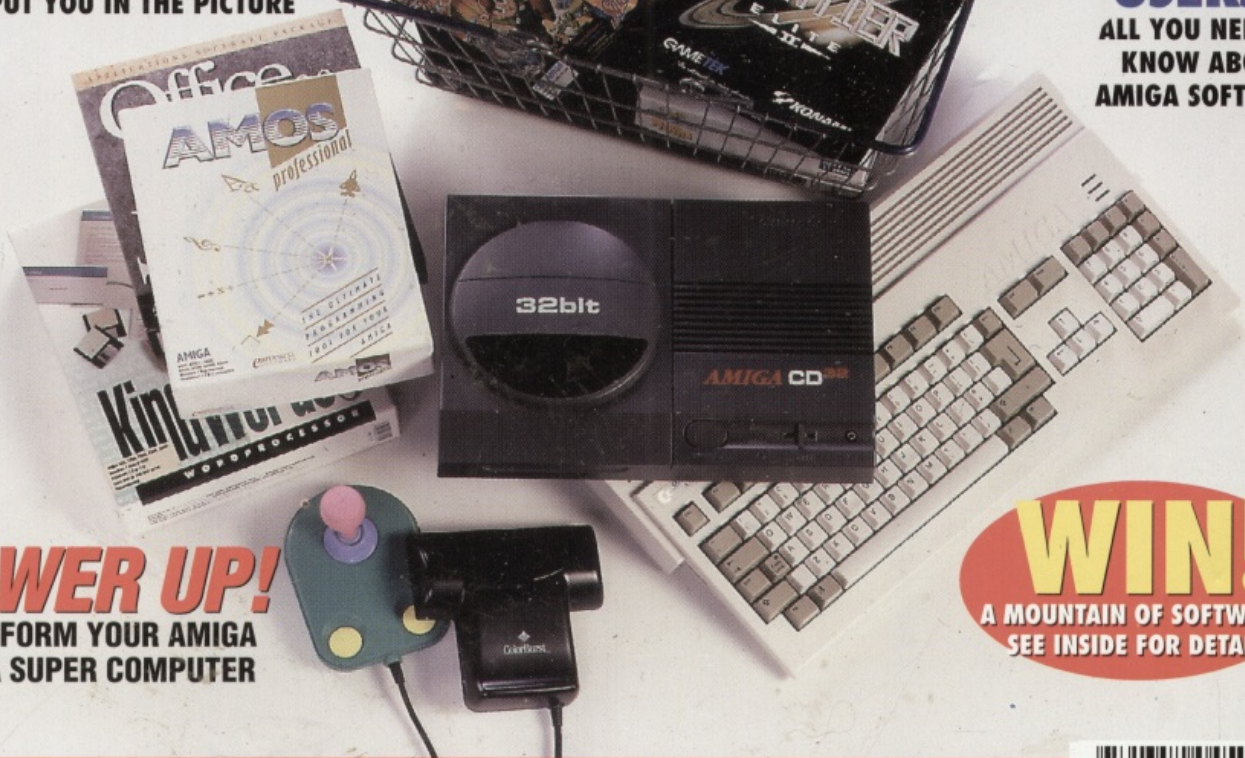

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New

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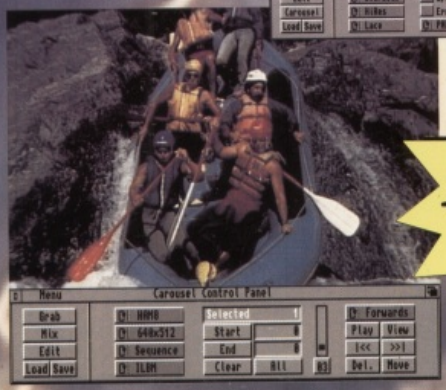

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ROMBO

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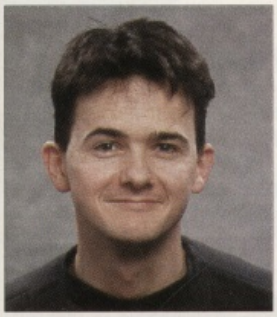
Contents

ISSUE ONE - WINTER 1994

WELCOME

You hold in your hands the most authoritative guide to Amiga software ever published. Over the next 180 packed pages, we'll be taking a look at the top software packages on the Amiga plus a whole range of peripherals and add-ons. If you're serious about your Amiga, then you'll want to read the most detailed and accurate reviews possible before making that vital purchasing decision. And that's were we come in. We've assembled a team of Amiga experts to help you choose between the myriad number of programs that clog up the shelves of your local computer store. From music and graphics packages to memory upgrades and accelerator cards, we've covered the lot.

From budget priced programs through to ones which cost hundreds of pounds, we've tested all the major packages. What's more, we've also put together detailed comparison charts, given contact numbers, and generally explained what benefits and drawbacks each program offers. So what are you waiting for? Get stuck in to this weighty tome and discover the hidden power that lurks within your Amiga.



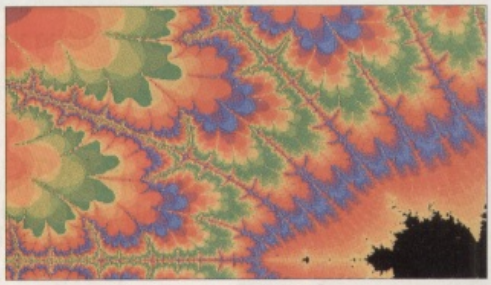
Dan Slingsby - Editor

What's New, What

6 GRAPHICS

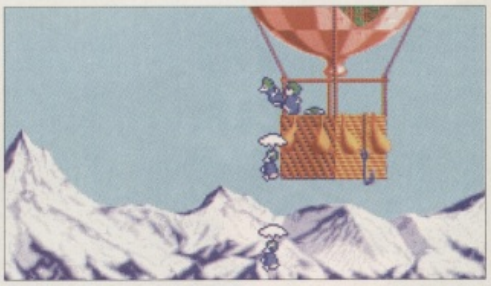
More than any other home computer, the Amiga is capable of generating stunning graphics and animations. It's not just the wonderful AGA chipset that's to thank either, because the Amiga is supported by a wonderful array of state-of-the-art graphics packages.

In this section, we take a look at a selection of the very best ranging from art and animation packages to ray tracers and even fractal animators. For the high power user, we've even included a selection of professional and semi-pro graphics boards.



80 GAMES

The world would be a duller place if all we had to do on the Amiga was load up spreadsheets and databases. Luckily, the world's number one home computer is blessed with more than its fair share of classic games. Take your pick from *Frontier, Speedball 2, Monkey Island 2* and others too numerous to mention. As well as giving our own personal recommendations of hot games, we also take a look at cheap budget releases and nominate games for the computer-equivalent of the Golden Turkey awards. Find out which are the winners and losers here!



58 PROGRAMMING

Want to become the next Sinsible Software or Bitmap Brothers? Then at some stage in your career you're going to have to learn to program. Sorry, but there really isn't any other way to do it. Fortunately, the Amiga is blessed with a huge range of programming aids to help you on your way.

Whether you want to start slowly with AMOS or Basic, or dive in at the deep end with assembler or C, you're certain to find the right pointers to help you select the best language for your requirements and ability.

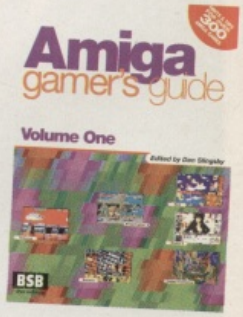
70 BUSINESS

When it comes to managing a business, there's a broad selection of software available to help you get things running smoothly. Starting with basic programs such as word processors and databases, and going on to cover more specific items such as stock control and cashflow forecasting, we review the programs that you really need.

104 BOOKS

Staring at a blank screen isn't going to get you very far when trying to come to grips with the Amiga. Instead of acting like a zombie, why not pick up one of the many fine literary tomes dedicated to the Amiga computer and harness the hidden power of your machine?

Whether you've just bought your first Amiga, or you're about to start learning your third language, you'll find that our books' guide is your first step to computer enlightenment. After that, all you have to do is choose a title and away you go.

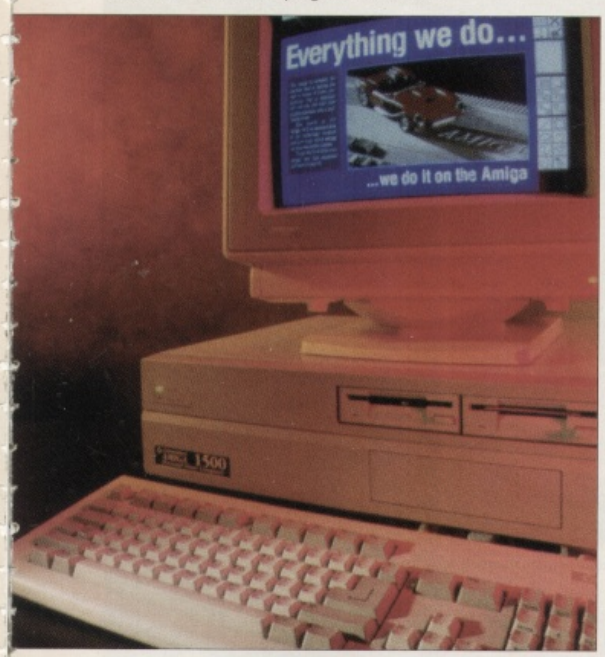


to Buy & What to pay...

110 DESK TOP PUBLISHING

Have you ever wanted to create your own leaflets, posters or even magazines? It's not as difficult as you may think, especially when you take into consideration the many excellent packages that exist to help you do so.

From budget-priced programs through to professional packages and desk-top scanners, there is something to suit all needs and tastes. Whether you want to produce a full-colour magazine or a simple A5 black and white leaflet, we take a look at the best programs available.



116 DESK TOP VIDEO

Whether you're a latent Jeremy Beadle, or a closet David Lynch, you'll find all the necessary inside gen on how to make movies on your Amiga tucked away in this section. We review and rate all the software and hardware available to help you in your quest for immortality.

Whether you're looking at genlocks, video cameras, editing software or console decks here's where you'll find your answers, complete with impartial buying advice.

126 EDUCATION

Of course, the Amiga is also a great teaching tool – given the right programs to run. If you've a young child and want to stimulate their mind or creative tendencies, then the comprehensive range of educational software that's available is just the thing. From Fun School to National Curriculum subjects, there's something for everyone here.

134 ADD-ONS

If you're going to expand your mind, it won't be long before you'll be looking to beef up your Amiga to match. Whether it's an extra floppy drive, or a half meg RAM upgrade, or something altogether more substantial, this is the place to look for unbiased advice.

With a few carefully chosen accessories it's possible to transform your Amiga into a lean, mean super computer. Whether you own an A4000, A1200 or even an A500, we show you how to tap its hidden power.

149 CD32

And we couldn't possibly give you a buyer's guide without a look at software for Commodore's latest marvel, the CD32. And we haven't forgotten all you CDTV and A570 CD ROM drive owners out there either, as we detail exactly what's available for your particular piece of kit.

Offering what is undoubtedly the most comprehensive summary of existing and future titles, as well as detailed compatibility listings showing all the great CDTV software that you can still use on your state of the art console, this is simply the CD ROM standard for others to match!

161 MUSIC

Although other computers became known as ideal tools for musicians thanks to their built-in MIDI interfaces, the Amiga offers unequalled music power thanks to its ability to replay up to four sound samples simultaneously via one of two stereo channels. Of course, if you prefer a more professional environment, the Amiga can also offer a MIDI set up that is the equal of any other computer.

In our sound section we evaluate some of the most exciting music software, including trackers and notators for creating professional scores. We also play around with a few MIDI instruments to show you what represents the best starting place for new musicians.

THE ULTIMATE AMIGA BUYER'S GUIDE '94

Editor
Dan Slingsby
Technical Editor
Mat Broomfield
Writers
Mat Broomfield
Jason Holborn
Gary Fenton
Steve Merrett
Tony Dillon
Jolyon Ralph
June Brierley
Seb Lee-Delisle
Dan Slingsby
Production
A very tired Dan as they wouldn't pay for anyone!
Art Editor
Jo Winslow
Design
Wendy Martin
Hands Design
Steve Rumney
and a cast of thousands
Publisher
Garry Williams

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Graphics

The Amiga's graphics capabilities are legendary. Over the next few pages we'll be taking an in-depth look at the numerous ways that you can harness the Amiga's graphics power.

Whether you're creatively gifted or not, you can still use the Amiga to create a stunning variety of exciting and attractive images ranging from impressionist pictures to photo-realistic animated landscapes. If you are fortunate enough to have some imagination, there are dozens if not hundreds of graphics packages just waiting to turn your ideas into reality. Over the next forty or so pages, we'll be taking a look at the very best that the Amiga has to offer. But first, let's have a bit of a history lesson.

A BIT OF HISTORY

The Amiga was first unveiled to the world on July 23rd 1985 in the form of the A1000. Initially touted as a business machine, sales were slow and a machine with less power than an A500 cost a month's wages or more. When the Amiga 500 was released, sales eventually started to pick up, and it was for its gaming abilities that the machine became popular.

However, the first thing that most Amiga converts saw, were stunning pictures in magazines showing the incredible graphics that the new home wonder machine was capable of. Games such as *Defender of the Crown*, *King of Chicago* and a host of others ensured that users who at that time were used to the 16 colour displays of the Commodore 64 and Spectrum were falling over themselves to buy into the act.

Ironically, even the best of these games only used 32 colours on a low resolution display; quite mundane by the Amiga's own standards. However, what made these graphics so impressive was the fact that the user could define his 32 colour palette from a choice of 4096 colours. Compared to the Spectrum, Amstrad and C64 which had fixed palettes, this was a dream come true.

It was high quality games graphics such as these taken from *Defender of the Crown* that really helped the Amiga to become popular.

PARTNERS IN CRIME

From the very earliest days, Commodore were aware of the impact of their machine's graphics, and they wisely got together with Electronic Arts to arrange to bundle the paint package, *Deluxe Paint*, with every single Amiga sold. Since then, there has never been an Amiga package which did not include a version of the program. This means that

Over the years, our readers' art sections have attracted hundreds of superb pictures such as these excellent examples...

IMPROVING YOUR OUTLOOK

Unlike PCs which require dedicated monitors in order to see what you're doing, the Amiga can be used on an ordinary television set via its modulator.

Internally the Amiga represents graphics as a digital RGB signal which contains precise values for the amount of red, green and blue in every pixel on the screen. The television also understands this RGB signal, but unfortunately it uses an analogue interface with the rest of the world. Put simply, the aerial socket is not designed to accept a precise RGB signal. The modulator converts the Amiga's output into what's known as a composite signal, and this is then converted into a modulated RF (radio frequency) signal which the television can understand via its aerial socket. Once the RF signal reaches the TV, its internal circuitry demodulates the signal back into a composite form before being decoded into its RGB components ready for display on the screen.

The trouble with this method is that in the process of conversion from RGB to RF (via composite) and back to RGB again, the signal loses a great deal of quality (especially on cheap home TVs), and so the screen display is poorly focused and the colours are indistinct at best. The higher the resolution, the worse the problem becomes.

If you have a modern television set, there is a simple way that you can improve your display for only about £15 – buy a scart lead.

Most modern TV sets contain a SCART socket at the back (more commonly called a Eurosocket). This socket provides a way for you to interface directly with the set's display circuitry without having to go through all these harmful conversion processes.

You can purchase SCART leads from virtually any Amiga dealer, and once you have one, you can plug it directly into your TV and the benefits are immediate and impressive. There is one other benefit which is less obvious: the SCART cable plugs into your Amiga where the modulator used to go. Because it is just a small plug, there's no more danger of damaging the Video port by snapping the modulator off when you lean the computer backwards!

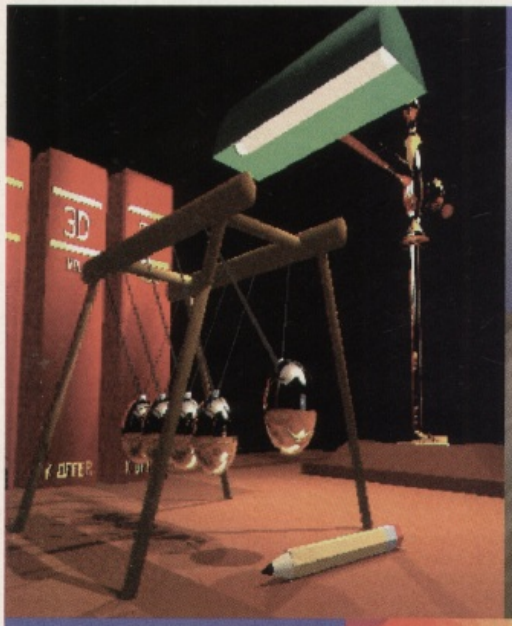
Scala MM210 is one of the best professional presentation packages available, and it's used all over the world in places such as hotels, airports and shopping centres, etc.

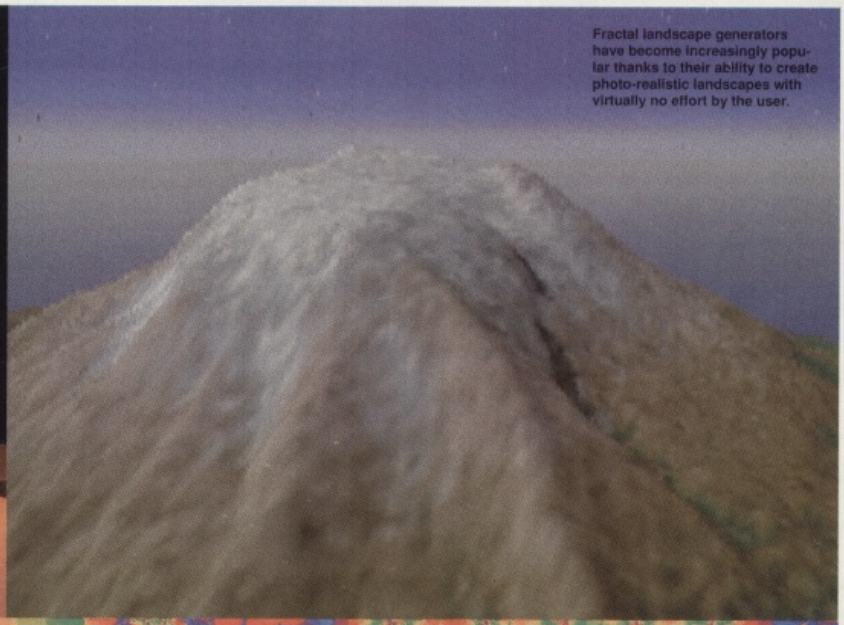
every single Amiga owner has had the opportunity to create graphics for themselves without spending money on additional software.

Of course, it has also meant that *Deluxe Paint* has become the de facto standard, and its name has become synonymous with art packages. Although this has made it difficult for rival products to gain a foothold, a few strong contenders have nevertheless arisen over the last year.

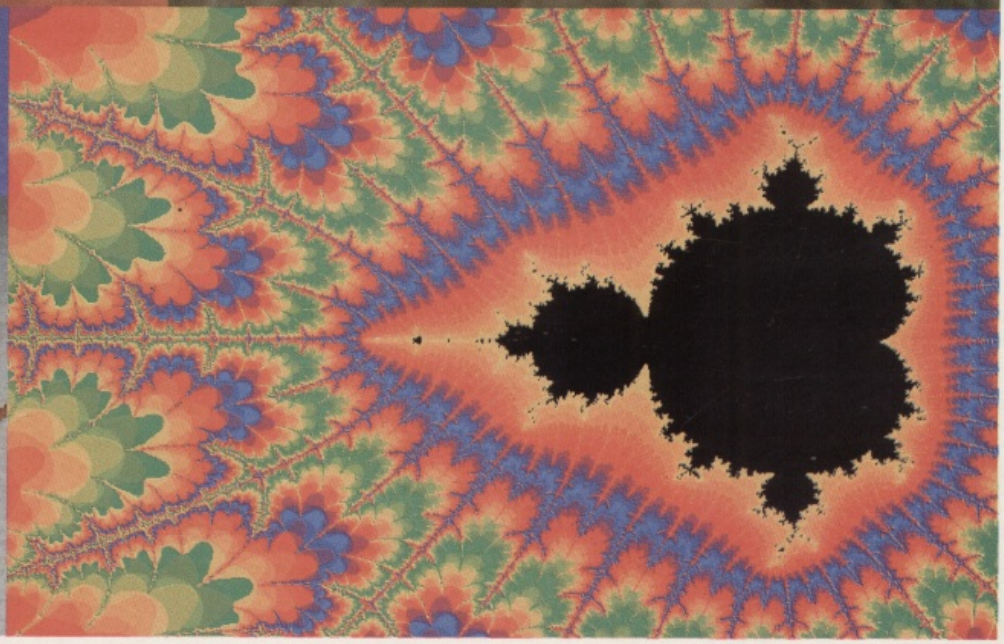
Another advantage of the *D-Paint* connection has been that magazines such as CU Amiga have been able to plan tutorials and run competitions based upon computer art safe in the knowledge that all readers have access to similar graphics software. In fact, CU's own Art Gallery is one of the most popular sections of the magazine, and it receives many entries each month.

CU Amiga started showcasing reader's art in 1990. Each month a single screen was selected as the winner and it was put on the coverdisk and printed in the magazine. At about the same time, our resident art specialist, Peter Lee, began a series of tutorials covering everything from artistic technique to creative animation. When we dropped the Screen of the Month section, the outcry from readers was so great that we soon restarted it. It wasn't long before this section got a new lease of life in the magazine called Art Gallery. In the gallery we now show some of the stages in the construction of screens so that other readers can hopefully pick up tips by copying the techniques that are used. »

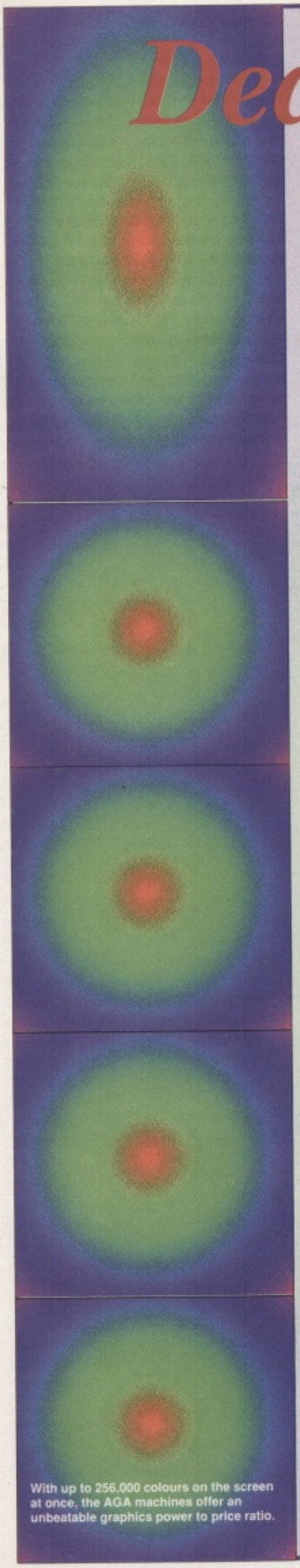




Fractal landscape generators have become increasingly popular thanks to their ability to create photo-realistic landscapes with virtually no effort by the user.



Above: Early ray traced demos such as these wowed everyone who saw them. At the time graphics of this quality were totally unheard of on a home computer.



With up to 256,000 colours on the screen at once, the AGA machines offer an unbeatable graphics power to price ratio.

Deadly Duo

As the Amiga owes so much of its success to the quality of its graphics, it's worth taking a second to look at the two elements that make those graphics so special.

A NEW RESOLUTION

The first element of the AGA machines is the high resolutions at which images can be displayed. As you probably know, the screen is made up of small rectangular dots known as pixels. A screen's resolution is usually described as an X by a Y value; in other words how many pixels wide the screen is, by how many high. The Amiga's lowest resolution is 320x256, so that means that regardless of the size of monitor or TV you display the picture on, that picture will only be 320 pixels wide. If you double the resolution to 640x512, the extra pixels still only occupy the same amount of screen space. As you can imagine, the only way to fit the extra pixels in, is to half their actual size, and this is exactly what happens. It doesn't take a great leap of logic to see why more pixels – and consequently a higher resolution – is desirable. Higher resolution = smaller pixels = a finer, more detailed image.

For games, high resolutions are neither necessary nor particularly desirable. For starters, a higher resolution screen also means more pixels to be coloured in by the graphic artist! It also means more processor power is needed to move the graphics around and in the case of most arcade games, there just isn't enough power available to use high resolution graphics. For this reason, you'll almost never see a game that uses high resolution screens, although strategy games where graphics speed isn't important, may opt for this mode.

If the resolution of a screen can be made high enough, one can no longer see the jagged edges formed by rectangular pixels at all. When this sort of resolution is reached, graphics are ideal for broadcasting or even for recording onto transparency film. For PAL broadcast work, a resolution above 576x720 pixels is ideal (NTSC 486x720), but transparencies, especially when they're going to be made into posters, need to use a higher resolution still, and 2000-5000x2000-5000 or more is often used.

A SPLASH OF COLOUR

The second element that defines how good a computer's graphics are, is its colour resolution, or how many colours it can display. On the Amiga this can be quite complicated because the maximum number of colours that it can display at any one time is usually less than the maximum number it is capable of generating.

For example, in HAM8 mode on an AGA machine such as the A4000 or A1200, by using a sort of pixel trickery, the computer can display up to 256,000 colours simultaneously. However, those colours may be selected from a palette of 16.7 million! Similarly, in half-brite mode on an A500, the Amiga can display 64 colours from a palette of 4096.

So why the discrepancy I hear you ask? Well it's down to the way that the Amiga generates colour using what are known as bit-planes. A bit is the technical name for a single unit of storage space in the computer's memory, and it's the smallest piece of information that the computer can hold. Each bit has only two possible states: on (represented by the digit 1) or off (represented by 0). By combining bits, you can represent much larger numbers in the same way as you can combine two or more decimal characters to represent bigger numbers. This counting system is known as Binary. For example, look at the way the following three bit number progresses.

BINARY VALUE	DECIMAL VALUE
000	0
001	1
010	2
011	3
100	4
101	5
110	6
111	7

Now to return to the subject of bit-planes, each pixel is represented in the computer's memory by one or more bits. The higher the number of bits, the greater the number that can be allocated to a single pixel. This number points to a specific colour in a pre-defined 'list' of colours. Therefore if a pixel is only represented by three bits, it can only use one of the colours 0-7, so you can immediately see how it's desirable to represent each pixel using as many bits as possible. In fact, each time you add a bit-plane, you double the number of colours that can be used.

In actual fact, the human eye is not capable of distinguishing more than a certain number of different colours, and this number of colours can be referred to when each pixel is represented by 24-bits in the computer's memory.

In case you're wondering why all computers don't automatically come with the ability to display 24-bit graphics, you should remember that it costs a lot of memory to store and display such images. For example, even a low resolution screen of 320x256 pixels requires 240k of memory, whilst a hi-res screen needs almost a megabyte per screen!

GRAPHICS FOR MONEY

As the Amiga has become more widespread, it has seen more and more commercial usage. Whereas the sheep may continue to use graphics workstations costing tens and even hundreds of thousands of pounds, the smart money has gradually turned to the Amiga as a high quality, low cost graphics generator for professional use.

This trend has been particularly pronounced in America where the Amiga is now seen as THE desktop video machine to use, thanks almost exclusively to the incredible Video Toaster from Newtek. Here in Europe, the Amiga's role in the commercial market has been largely facilitated by the appearance of a variety of graphics boards. The first of these was the Harlequin, manufactured and distributed by the Amiga Centre Scotland.

The Harlequin is a 32-bit display card that plugs into higher end machines and offers a 16.7 million colour display at a very high resolution. It can be hooked up to a transparency unit for output to 35mm film, or it can be linked directly to video recorders for broadcast quality animation.

At over £800, Harlequin is definitely not aimed at the home user, but its appearance seemed to spark off massive development in the area of 24-bit output. Soon rival boards such as GVP's Impact Vision 24 and Archos's AV24, began to appear, and just recently there seem to be new boards released every week.

Of course, the ultimate winner in such a fiercely contested market is the consumer for it's well known that competition breeds innovation. It also brings prices tumbling down, and recently we've seen a number of boards with a price tag of less than £300.

Because the Amiga has always been seen as THE graphics machine, it has enjoyed a great diversity of supporting software, and paint packages are just the tip of the iceberg.

EYE-CATCHING DEMO

One demo that really wowed early show goers was the immortal Juggler animation. This was a ray traced animation which depicted a stylised man juggling a couple of glass balls against a chequered background. By today's standards, the graphics were not stunning, and the animation was nothing special, but it was the first time that ray tracing had been seen on an affordable home computer. It proved to people that the Amiga could be used to produce 'real-world' graphics, in other words graphics which could almost be taken from a photograph. From then on a steady stream of development into ray tracing pack-

Thanks to the AGA chipset, the Amiga stands proudly back at the top as far as home computers go. No other machine in a similar price band can touch it for raw graphics power.

ages was begun resulting in a number of awesomely powerful programs which are available today. In fact one of these (*Lightwave*) was even used to test the dinosaur animation in Spielberg's recent smash, Jurassic Park.

From one type of real-world graphics to another, it seemed a logical step that fractal programs should appear on the Amiga. Thanks to programs such as Tomorrow's World and films such as Star Trek 2, fractal graphics had become the new buzzword. On the Amiga, this took two forms: fractal landscape generators such as *Vista*, and Mandelbrot programs which seemed to do little more than generate pretty patterns.

Although the former type of fractal program has benefitted greatly by the mass availability of inexpensive 12- and 24-bit boards, I have still to see Amiga generated landscapes in any commercial offering.

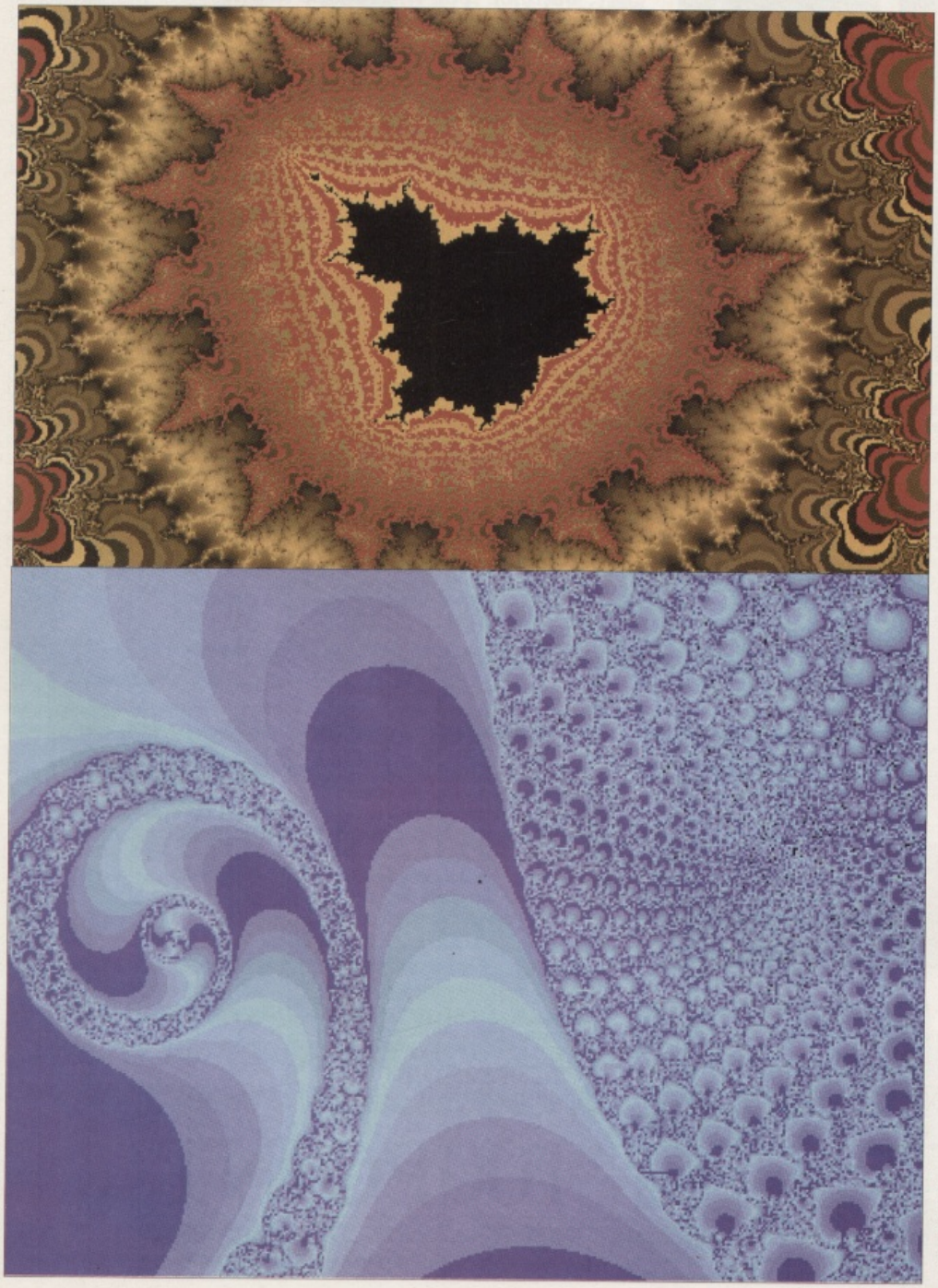
Ironically, it's the more esoteric and seemingly useless area of Mandelbrot generation that has seen perhaps the most widespread use for Amiga graphics, certainly in the UK at least. The rave culture, with its bright colours and acerbic music style, is the ideal complement to the equally vivid fractal imagery and Amiga graphics, so it was not surprising when this imagery turned up at raves and videos all over Europe.

FULL CIRCLE

In a sense, the Amiga graphics market has now gone full circle. When the Amiga was young, there wasn't a home machine to touch it graphically. PCs were still slow and expensive and were running clunky old CGA graphics. The Atari ST was the nearest rival in terms of price and its graphics performance didn't hold a candle to the Amiga. Of course, things change and the Atari Falcon was developed, whilst ever cheapening PCs gained VGA and beyond. The humble Amiga started to look a bit pallid by comparison. That is, until Commodore pulled a rabbit out of the proverbial hat yet again and released the AGA chip set!

Thanks to AGA, Commodore were able to produce the A1200, a machine which could display 256,000 colours at once from a palette of over 16.5 million. Better yet, they could be displayed at resolutions more than twice as high as previously. The most amazing thing about the 1200 is its incredible price. For about half the price of a comparable PC, A1200 owners received a state of the art machine designed to be the first of a new generation.

Thanks to the Amiga 1200, loyal Commodore users can once again revel in the fact that they are using a truly innovative machine, and one whose graphics capabilities knock the socks clean off the competition.



The most popular fractal images of all are those generated using the Mandelbrot set. Although they have little intrinsic value, images such as these have been widely exploited by musicians and video makers, not to mention T-Shirt manufacturers!

Deluxe Paint 4.1 AGA

No Amiga program can claim a longer or more distinguished lineage than Deluxe Paint. We take a detailed look what it has to offer.

£99.99 – ELECTRONIC ARTS – 0753 549442

By bundling *Deluxe Paint* with every new Amiga, Electronic Arts have ensured that all Amiga owners knew their name, and would hence be potential customers when they released a new version of the program. Despite this strong position, they certainly can't be accused of churning the upgrades out simply to earn another dollar.

In fact Electronic Arts (EA) have been almost ponderously slow about upgrading the program although, to be fair, each of their upgrades has contained significant advances over earlier versions. Version 4 was two years in the making, yet EA still took the trouble to enhance it when the AGA machines were released. It's exactly that dedication to detail and customer satisfaction that has won the company awards and fans the world over.

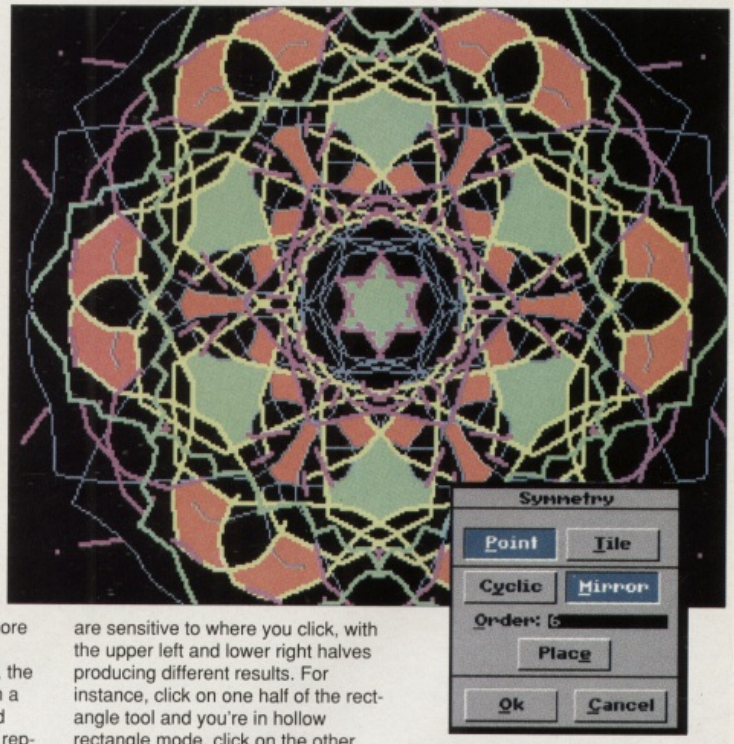
Over the past few years, *Deluxe Paint* has been the standard by which all other art packages have been measured, and until recently all have fallen short of the mark.

A COMPLETE FACELIFT

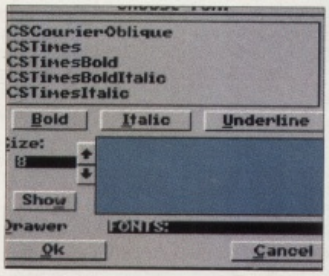
When Version 4 was released the user-interface underwent a number of significant changes. These were primarily made to comply with the Workbench 2 look that had started to become popular. Some of the changes were also made because unlike previous versions of the program, *D-Paint 4* now provided full HAM mode support (HAM8 on AGA machines).

For an old-timer like myself, some of the style changes are unwelcome, but on the whole, the program looks slicker and more functional than ever before.

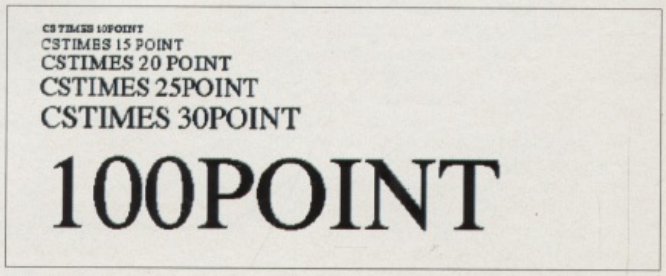
As with all previous versions, the main drawing tools are placed in a vertical strip down the right-hand edge of the screen. Each tool is represented by a small icon (see picture) which gives a stylised representation of its purpose. Click on the icon with the left mouse button and its colours are inverted to show that it's been selected. Some of the icons are sensitive to where you click, with the upper left and lower right halves producing different results. For instance, click on one half of the rectangle tool and you're in hollow rectangle mode, click on the other half and filled rectangle mode is selected. Multiple clicks also produce a variety of results with certain icons, such as the zoom icon, when each additional click increases or decreases the magnification of the



The symmetry tool is the least useful of *DPaint*'s tools. Nice if you want to imitate a Spirograph though!



DPaint can handle scalable fonts at any size. The larger the point size, the better the quality.



DPaint's text handling is far from impressive, but at least you can now use scalable fonts.

selected screen area depending on which button is pressed.

Speaking of buttons, most of the icons also produce a different response if clicked on with the right button, and this response is invariably to produce a requester where you can modify the way that the tool works. For example, right click on the symmetry icon and a requester appears allowing you to alter the type and degree of symmetry.

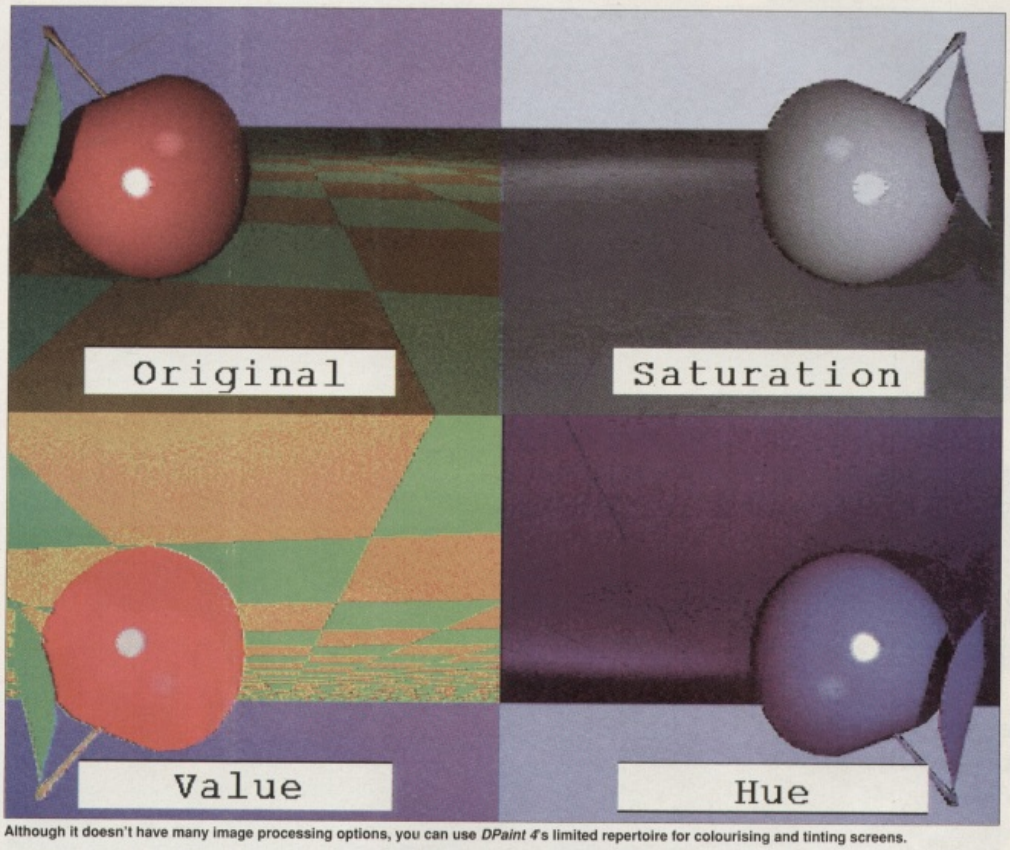
The palette resides below the tool strip, and depending upon the current screen mode it will display up to 64 colours at a time. If you're working in one of the HAM modes, or 128-256 colour mode on an A1200 or 4000, there are arrows beneath the palette which can be used to view additional blocks of 64 colours.

Running across the top of the screen is the menu bar and this naturally contains many more options. Both the menu bar and tool strip/palette can be turned on or off with a single key press as required.

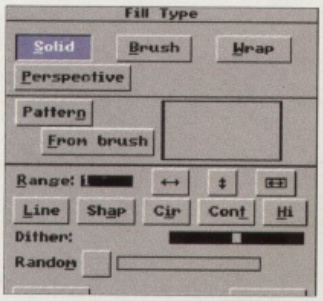
FIRST IMPRESSIONS

When the program first loads, the majority is empty and black, and this is your work area, although memory permitting you can also use a second screen as a scrap area, switching between the two by pressing the letter 'J'. I've never understood why Electronic Arts made the default paper colour black and the default ink light grey. My first action is always to set the default paper to white, although this is perhaps a little harsh on the eyes. Maybe EA were considering more esoteric sensibilities when they designed the program!

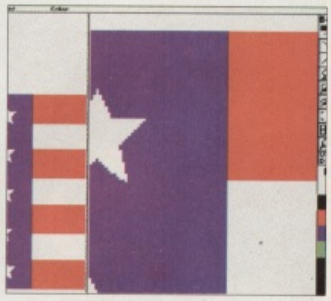
For most of the time that you use the program, you'll be using the tools that I mentioned earlier, after all, that's why they're on the screen in the first place. The usual assortment are available, ranging from freehand draw to ellipse and polygon tools. A variety of 'nib' sizes are available, but even if there's not a pre-defined one »



Although it doesn't have many image processing options, you can use *DPaint 4*'s limited repertoire for colourising and tinting screens.

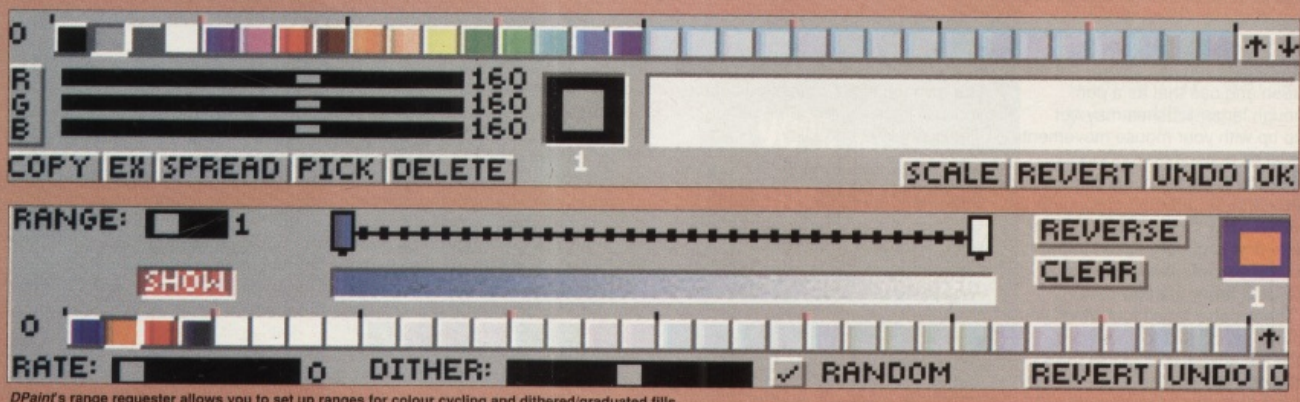


DPaint has a selection of interesting fill modes which can save you hours of hand texturing. Be careful though, they can be incredibly slow to use in HAM mode.



Its user-friendliness combined with a well defined and intuitive user-interface has helped the program to stay at number 1 for eight years.

Home on the Range...



DPaint's range requester allows you to set up ranges for colour cycling and dithered/graduated fills.

It's all very well having an art package which can manipulate animation, but at the end of the day you eventually have to do some drawing yourself. Now this is fine if you're one of those super talented artists who can put Leonardo Da Vinci to shame, but most of us are no great shakes with a mouse.

Not to worry, that doesn't mean that you can't still create fabulous and completely convincing animations. A number of companies offer predrawn anim brushes or clips which you can animate yourself.

Probably the best known of these companies is RGB Studios who produce an impressive set of animation libraries known collectively as Real Things.

There are at least five volumes in the set covering subjects such as Humans, Sea Life and Safari. Each set contains a collection of animated brushes as well as a variety of appropriate scenic clip art (sea weed and rocks etc for the Sea Life collection for example).

Also included is a variety of static images which demonstrate a number of different artistic techniques which are discussed in the accompanying instruction manuals.

Most of the animations have been digitised from footage recorded by the Survival team from Anglia TV. They have then been enhanced and retouched by RGB's professional artists.

The images are so good that you will even see them appear on television from time to time.

"Why DIY when someone else can Do It for You...?"

» that you like, you can always cut out a brush and use that as a pen, although larger brushes may not keep up with your mouse movements as well as a standard pen would.

For the more avant garde artist, there's also an airbrush option with a variable spray radius. Obtusely, the rate of flow is directly linked to the size of the spray; the larger the spray, the lower the flow rate.

There's also a text tool which you can use to add text to your work. Since the advent of scalable fonts in Workbench 2, it's nice to see that *D-Paint 4* supports Compugraphic (CG) typefaces. This means that provided you own the initial scalable typeface, you can infinitely rescale it without significant loss of quality.

BASIC TEXT HANDLING

On the minus side however, the program's handling of text is as rudimentary as it was in the very first version. Text may be plain, bold, italic, underline or a combination of some of the above, and is entered in lines straight onto the screen. These lines cannot be justified or centred or textually manipulated in any other way.

One tool that I never did find a use for, is the cycle tool which can be used to create cyclic or tiled patterns. Mind you it's a nice one for the kids, rather like the computer version of Spirograph!

Apart from the freehand draw and magnify tools, the palette is probably the most important part of the program. Pressing 'p' calls up the palette requester which appears as a strip along the bottom of the screen unlike earlier versions of the program. Although visually this requester has been jazzed up, the essential parts of it remain unchanged and you can use it to mix single colours or create entire spreads from one colour to another. One particularly nice feature is the ability to use a 'pseudo palette' as a test bed whilst mixing and experimenting with new colours.

The only major change in the palette requester is the absence of the range options, and this is because they've been moved into their own requester thanks to a redesign in the way that ranges are defined. A range is a sequence of colours used either for a dithered fill or for colour cycling.

To define a range you need only »

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Using the program's Morph option it's easy to create an anim brush where one image is transformed into another one.

The program offers you a variety of useful brush manipulation options. Here I've merely bent the image first vertically, then horizontally. [And you look a lot better for it Mat – Ed]

» specify the first and last colours and the computer will do its best to work out the colours in between. Alternatively you can specify some of the intermediate colours, and this is essential if you want your range to use illogical transformations. For instance, in a red to yellow range, there is no green, but if you want the computer to include it, you only need to indicate as much in the range requester.

Talking of dithered fills, these provide an essential and valuable drawing technique which can be used either stand alone or in conjunction with one of the filled shape tools.

There are eight different dither fill modes all of which can be selected from the Fill Type requester. By careful selection of the dither mode combined with a smoothly graduated colour range, you can easily simulate a variety of lighting effects which would take considerable time to draw by hand. Highlight, for instance, is designed to represent the specular lighting of a single point light source hitting the area being filled.

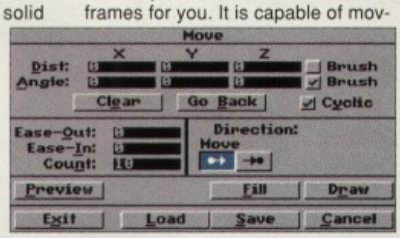
Whilst we're in the Fill Type requester it's well worth taking a look at some of the other options. Apart from a straight forward solid fill, *D-Paint* is also capable of using your current brush as a fill pattern. It does this in a variety of ways. The simplest of these is the From Brush option where the current brush is simply duplicated in a tile pattern across the surface of the area to be filled. The Brush option, on the other hand, takes the current brush and re-sizes it so that it is only printed once on the fill area. Wrap performs a similar function, but the brush is actually distorted far more, almost as if it were being 'wrapped' around one face of a 3D object. The final option is called Perspective and it works exactly like the From Brush option except that the current Perspective menu settings are also taken into account.

BASIL BEWARE

A very important part of using brushes in *D-Paint*, is the Brush menu which contains a host of options for altering the appearance of a brush. They mean that you can pick up part of a picture as a brush, experiment with a variety of modifications before stamping the brush back down again anywhere you like. Among the more interesting options contained in this menu are Rotate, Shear, Stretch, Bend and Metamorph. The latter option particularly, is of great significance because it allows you to transform one into another over a user-definable number of frames. This in turn leads onto one of the program's most popular features: animation.

Although rival paint packages had included limited options for some years, it wasn't until Version 3 that Electronic Arts added this option to their program. Not much changed between versions 3 and 4, although a video-style control panel was added to make replay of your work easier.

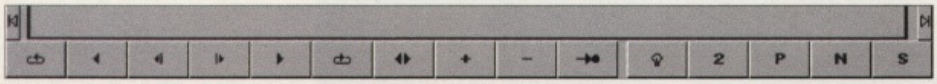
D-Paint's animation options can be roughly divided into four areas: the move requester, anim brushes, the Metamorph option and freehand animation. Although the metamorph option can certainly save you the most time, it's quite crude in the way that it works and is most effectively used to represent transformation rather than movement. The Move requester, on the other hand, is quite powerful. With it, you can specify a starting and ending point for a brush, as well as the number of frames it takes to move from one to the other and the program will automatically calculate the intermediate frames for you. It is capable of moving and rotating a brush in all three planes, x, y and z, and it can even use a process called Ease to create a graduated increase or decrease in the speed at which an object moves; ideal for simulating gravity!



The Move requester allows you to automate the anmation of brushes.

In itself the move requester is quite powerful but it really becomes very impressive when used with an Anim brush. As you've probably worked out, an anim brush is an animated brush. These can either be picked up from an animation you've created, or loaded from disk. If you use an anim brush in conjunction with the Move requester, each consecutive frame of movement also utilises another frame in the anim brush sequence. This means that you could use an anim brush of somebody walking and with the move requester move from one side of the screen to the other so that when the animation was replayed, the animated character genuinely appears to walk across the screen. Of course you may have to create the initial anim brush, but once created it can be reused as often as you like.

When it comes to creating detailed animations there are times when you'll simply have to create the objects frame by frame, pixel by pixel. This can be a very time consuming business flipping from frame to frame to check that the current frame has moved by just the right amount. To help you with this, *D-Paint* features an

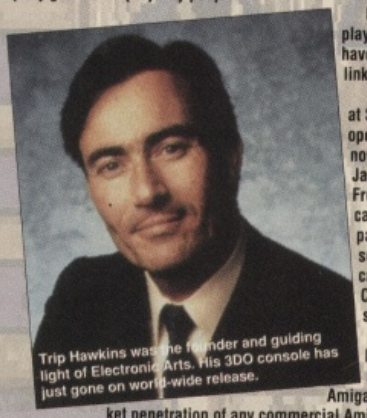


The Control Panel offers you video-deck style controls to manipulate and replay your animation.

From Small Beginnings...

The very first version of *DPaint*, complete with King Tut screen, went on sale in 1985, and won universal approval.

Although they are now the biggest home software publisher in the world, Electronic Arts had the same small beginnings as any other company. It was founded in 1982 by a young hotshot called Trip Hawkins. Having worked as Director of Marketing for Apple Computers Inc., Trip set up EA to satisfy what he saw as a newly emerging need for home entertainment and creativity software. His vision was obviously right on the mark because in its first year the company grew to employ fifty people.



Trip Hawkins was the founder and guiding light of Electronic Arts. His 3DO console has just gone on world-wide release.

Electronic Arts was an influential player in the early Amiga market and they have maintained their close Commodore links to the present day.

Although their global headquarters are at San Mateo in California, the company opened a European division in 1987, and now has offices in America, England, Japan, Australia, France and Germany. From their first ever release, a game called *Pinball Construction Kit*, the company has released more than 550 separate titles which have been duplicated on cassette, disk, cartridge and CD ROM. Their current titles appear in seven different languages.

Deluxe Paint 1 was released in November 1985 and met with universal acclaim selling to at least 50% of ALL Amiga owners at the time, the highest market penetration of any commercial Amiga product before or since.

In 1991 Trip Hawkins resigned his position as President and went off to establish the 3DO company, a firm dedicated to the creation of a universal CD based machine for running entertainment and multimedia software. The result of his labours was unleashed on the world in October 1993 in the form of the aptly named 3DO, a $700 CD games console.

In eleven years Electronic Arts has won more than 300 awards for excellence from juries across the world. At the end of 1992 the company was worth over 160 million dollars and it has shown a profit for every one of the last eight years.

A BIT OF HISTORY

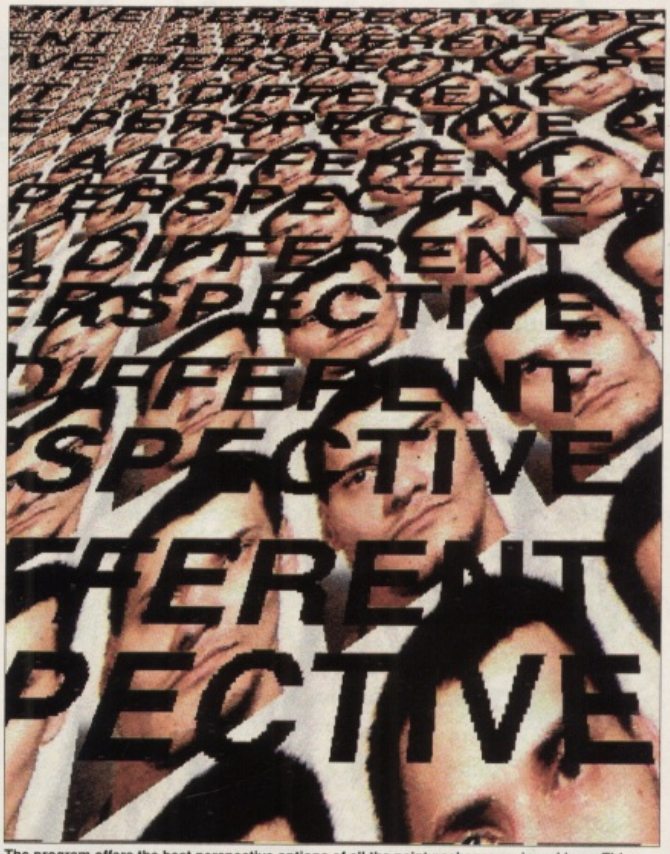
Deluxe Paint is the most popular art package the Amiga has ever seen, and has been around since 1985. It was designed and written by Dan Silva, a programmer who began his career writing software to simulate robotics.

After working for Xerox and Lucasfilm, Dan returned to Xerox and designed *Doodle*, a black and white paint program for the Xerox Dandelion computer.

Dan joined Electronic Arts in 1983 by which time he already had a clear idea of the way an art package should function. Bearing this in mind he started work on *Prism*, an art package originally intended as an in-house development tool. As *Prism* became more and more complex, it was clear that there was a mass market appeal for it, and in 1985 *Deluxe Paint* was released.

Dan eventually went on to write a further two versions of the program before handing over the mantle of responsibility to Lee Tarran who wrote version 4.

Dan Silva, the man and the animation. He's the brains behind *Deluxe Paint*.



The program offers the best perspective options of all the paint packages reviewed here. This effect took less than two minutes to create by simply applying perspective to a brush then selecting the perspective fill mode to repeat it all over the screen.

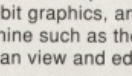
option called Lightbox and this is exactly the same as onion skin techniques used by commercial animators. It simply means that you can faintly see the last one or two frames on the current screen. Although they don't leave any impression, they can be used as templates when designing further frames.

CONCLUSION

Deluxe Paint 4 was the first paint package to include AGA support, and is still the best known art package in the world. It's capable of importing 24-bit graphics, and on an AGA machine such as the A1200, you can view and edit pictures in up to 256,000 colours at resolutions up to 1280x512 pixels, higher if you use the overscan modes.

The program's selection of tools still compares very favourably with newer programs, although in the HAM modes especially, the program is agonizingly slow to use, and screen updates can take minutes or more, especially when performing blending and re-mapping operations.

I still use the program regularly, but only in conjunction with other paint packages. It is still a valuable tool, but there are an increasing number of very attractive rivals.



And the Future...?

Deluxe Paint 4 AGA is now being given away free as part of Commodore's Desktop Dynamite A1200 bundle, so a whole new generation of Amiga owners will get the benefit of the program. Based on their past record, it is safe to assume that it won't be long before Electronic Arts release a new version, and in fact they've just announced plans to unveil version 5 in the first quarter of 1994.

The program will be designed and programmed by Lee Taran, who also wrote version 4. Although no features list has yet been finalised, Electronic Arts recently invited a whole bunch of the industry's foremost journalists and art users to a brainstorming conference where ideas for version 5 were thrashed over for a day.

As home video production and animation becomes increasingly popular, it's safe to assume that the next version of the program will include enhancements to the animation system and will almost certainly be optimised so that it runs faster.

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Brilliance

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Over the past seven years new art packages have come and gone, but apart from D-Paint none has stood the test of time. Brilliance is a new package which looks as if it might be around for a while to come...

Deluxe Paint has stayed at the top of the heap for two main reasons: its specifications and its 'feel'. Many programs have duplicated its features, and some, especially HAM based programs, have even exceeded them. However, it's the tenuous area of 'feel' that rival programs have been unable to emulate. Not only is *D-Paint* extremely stable (in fact it has never crashed on me so far as I can remember), but being the first art program that 99% of us encounter, we naturally compare everything else we use to it. It's only with the release version 4 that *Deluxe Paint* finally lost some of that wonderfully functional and user-friendly feel that has been its trademark.

Brilliance features none of the traditional menus found in other paint packages.

A STAB IN THE BACK

Digital Creations have obviously done their homework because just when *D-Paint* is at its most vulnerable, they release a program which seems as if it has been designed for the future rather than upgraded from the past.

Rather than simply cloning *D-Paint*, they have redesigned their program from scratch. Its apparent that they've spent a long time studying what a user wants out of an art package, and they've taken quite a radical approach to their program's user interface.

Brilliance has no menu bars at the top of the screen, instead virtually everything is pictographically represented by a series of icons which are contained in a tool bar that runs along the bottom of the screen. Behind these icons lie »

Dongle Ding Dong

At nearly £200, nobody could accuse *Brilliance* of being a cut price program, in fact it's more than twice the price of *D-Paint*. Mind you, it's a quarter the price of *TV Paint* so price is clearly a relative point.

Anyway, Digital Creations naturally want to protect their two year development investment by selling as many copies as possible. There are two ways to achieve this: the first is to make as many people want to buy the software as they can. The second is to make sure that those people can't obtain a working pirate version for the price of a couple of disks.

There have been endless different attempts to combat the problem of piracy, but one of the most successful is the use of a device known as a dongle. A dongle is a small plug that connects to the joystick port of the computer. It may contain a tiny chip or may simply have some of its wires crossed internally, the point is it alters the response of the joystick port. The first thing that a dongle protected piece of software does is to check that the dongle is plugged in. If it isn't then the software generally won't work. The advantage of this system is that the disks on which the software is provided, can be left completely unprotected, so the legitimate user can make as many back-up copies as he requires.

The disadvantage is that the user must always have the dongle available in order to load the software. This can be inconvenient when it's the only piece of software that uses dongle protection, but if you have several such programs, it can be infuriating as the computer must be switched off in order to switch dongles.

However, it's worth noting that Electronic Arts once won a special Software Publishers Association award for selling over 100,000 copies of *Deluxe Paint*. Considering the fact that there are over four million Amigas world-wide, and 90% of those owners also have *Deluxe Paint*, why is it that they never reached 200,000 official sales?

Of course you're going say 'Ah but *Deluxe Paint* was given away free with the Amiga' and this is certainly true in Britain and parts of Europe. But at the same time there are a great many places where it was never given away, so it leads one to speculate to what extent the completely unprotected program fell victim to piracy. It's also worth noting that Electronic Arts added manual protection to the AGA version 4 of the program, so perhaps even their good will has been stretched too far.

As for *Brilliance*, it uses a dongle, which is a bloody nuisance, but as long as pirates exist, such measures remain a necessary and effective evil...

Pete and Lee's Bogus Journey

Thanks to the program's superb stencil options, it's easy to cut elements out of one picture and incorporate them into another. In this example I started with the picture of Pete and Lee, and I set up a stencil which only included their skin and hair colours. I then overlaid a green box on the screen. The guys were protected from deletion whilst the background was not. Naturally, the stencil was not absolutely exact so I had to tidy the image by hand.

The next stage was to load the desert picture onto the spare screen. I then returned to the main screen and chose Remap to ensure that the main characters stayed the right colour. All that remained was to pick them up as a brush (leaving the green background behind) then, returning to the desert scene, I stamped the brush down where I wanted it.

A bit of anti-aliasing to soften the edges of the characters and voila! Pete and Lee go monument valley without leaving home!

» dozens, perhaps even hundreds of additional options, and these are represented by gadgets and icons.

There's another important difference too, the tool bar runs horizontally instead of vertically across the screen. In actual fact this is quite logical because although it only appears to occupy a small amount of extra space when compared to other program's vertical tool bars, the screen is far wider than it is high, and this allows you to fit far more tools in.

Furthermore, the tool bar features collapsible sub-menus which are called up by clicking on one of the icons with the right mouse button. The sub-menu then opens below the main tool bar and up to six of them can be open at the same time, one beneath the other in the order that they were originally opened. Try to open a seventh, and one of the earlier ones will close automatically. The entire set of menus can be instantly collapsed behind the tool bar by clicking a single icon, whilst a second click will restore the previous menu open status.

As you might expect, the sub-menus contain options relevant to the icon to which they're attached, so opening the Ellipse icon's sub-menu calls up a strip that allows you to define the way and direction that ellipses will be drawn, as well as allowing you to rotate the current one.

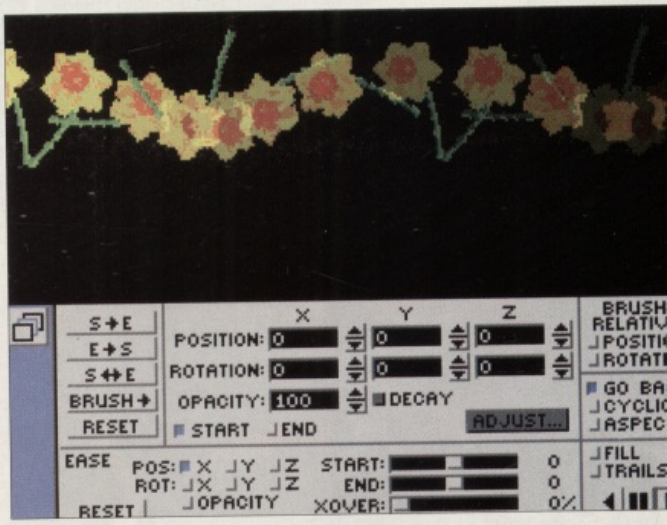
The tool bar itself contains the usual tools found in just about every art package going, you know the ones: freehand draw, line, arc, rectangle, circle, fill, cut & paste, text mode and magnify. There are also a selection of icons which pertain to more complicated options such as the gradient, draw mode and stencil sections, but more about those later.

MARVELLOUS MYSTERY TOUR

Using the program for the first few times is something of a voyage of discovery; you know what you expect each tool to do, but you're never quite sure if it will perform as expected or whether it will do something wholly original and interesting. For example, there's a standard arc tool, but click on the arc icon twice and you are in Bezier curve mode. Bezier mode lets you define complex bi-direction curves capable of exceeding 360 degrees and even changing direction mid-curve. Another nice option lies behind the Spray Can icon, where you can not only alter the diameter of the spray but its focus and flow rate too. The rate option means that you no longer have to watch the spray dwindle to nothing as you increase its size, whilst focus means you don't have to use a brush where the dots appear at completely even density all over.

For the real power user with four or more megs of memory, one of the most useful features of the program, especially for experimental work, is its infinite Undo/Redo option. This means that you can try effects safe in the knowledge that you can always undo later if you so desire. If, having undone an action, you then change your mind again it's a simple matter to redo it. Gone are the *D-Paint* days when you perform a complex drawing action and then accidentally release and re-click the mouse button adding one extra pixel and removing your ability to undo something hideous!

You can specify the size of the undo buffer, so that if you are multi-tasking it doesn't occupy too much memory. On the subject of buffers, the program also uses them to store brushes, animations and screens. Again, memory permitting there's no limit to the number of screens that can be loaded simultaneously; ideal when you want to cut and paste between more than one screen.



The program contains all the same animation options as *DPaint*'s Move requester, but a number of new features have been added including the Opacity option which can be used to fade objects out of view.

TWICE AS NICE

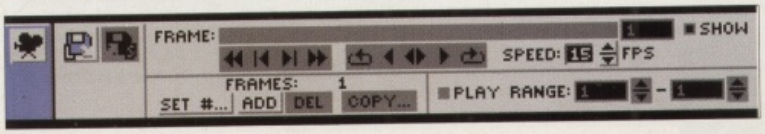
I keep using the phrase 'Memory permitting', because it's one that will quickly be included in your vocabulary if you use the program for any length of time. The program is far more RAM hungry than any other non-24-bit art package on the market. In fact, to be fair I should say that one of the programs is very RAM hungry because *Brilliance* is not one product but two.

The program called *Brilliance* is a register based program that deals with all non-HAM screen modes. What you see on the screen is exactly how the program represents your work in memory, so a 6-bit picture is stored in memory as a 6-bit bit-map. This means that you only use as much memory as the visible image requires.

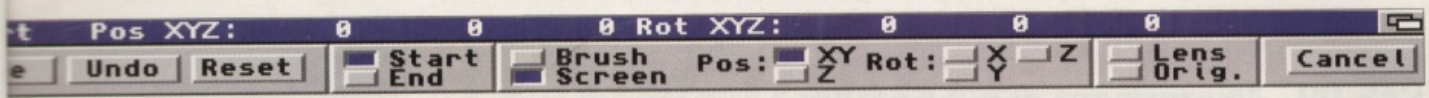
The second program is called *True Brilliance* and its a HAM/True colour package which represents all graphics internally as either 15- or 24-bit images. Therefore a HAM image which might ordinarily only require 100k of memory now requires as much as 400k.

At first it may be hard to see why you would want to store a 12-bit HAM picture as a 24-bit bit-map, especially when you can't even see the extra colours anyway. If after a few moments thought, you still feel that way, then in your case there probably isn't much point because you're unlikely to have much use for 24-bit images in any case.

However there is an ever growing number of 24-bit boards available nowadays, and an even larger number of applications and potential uses for 24-bit images ranging from video and TV production to creating magazines and posters. Just because you can't view a 24-bit image with *True Brilliance* doesn't mean that the image won't be extremely useful elsewhere.



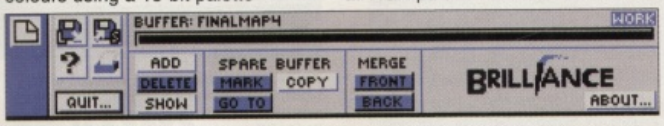
With excellent animation and support of anim-brushes, *Brilliance* is certainly the Amiga art package to beat.



The Adjust requester lets you set up complicated animations solely using the mouse.

Because *True Brilliance* can load, save and process 24-bit images it is ideal for retouching screens created with other packages such as Ray Tracers perhaps. On AGA machines, the program can display these 24-bit screens in very high resolutions with as many as 256,000 colours on the screen. Not a lot compared to a 16.7 million colour 24-bit image, but more than adequate to get a very good idea what the finished picture will look like.

If memory is a problem, you can tell *True Brilliance* to represent colours using a 15-bit palette instead of a 24-bit one.



If the program could load GIF and JPEG image formats, it would be near-perfect. Still, at least it can handle 24-bit IFF, not to mention four different animation formats.

Now these specifications are impressive enough already, but when you consider that the program offers you comprehensive animation facilities as well, including the option to save these in 24-bit colour too, then the program starts to look pretty special.

D-PAINT INSPIRED

In fact, it seems that *D-Paint*'s animation features provided the inspiration for Digital Creations' design team. Yet again, the most powerful options are contained in *Brilliance*'s equivalent of the Move requester. Whereas movements in *D-Paint* are expressed relative to the start point, *Brilliance* takes a different approach. In this program you simply specify the start and end point of the object to be moved, as well as the degree of rotation (if any), that the object should perform. Click Draw and the program will automatically calculate all in-between frames.

As with its rival, you can specify the Ease of a movement (how quickly it starts and stops moving). The ability to specify Ease in any of the three axes individually allows you to create curved movement paths and is a great boon.

Equally useful, is the Opacity option with which you can specify how 'solid' or transparent a brush appears. This means that you can create effects where titles and objects fade on and off the screen.

Another really nice and user-friendly part of *Brilliance* animation options is a section called Adjust. This option takes you to a special screen where you can manually drag the brush to be animated to its start and end positions, defining movement and rotation in all three planes with the mouse. This means that handicapped people or those with a keyboard phobia can at last enjoy every feature of the program.

When it comes to saving your animations, there are four possible save formats ranging from the clunky but *D-Paint* compatible Op-5 format at one extreme, to the ultra fast Op-8 long format which allows you to animate at television speed. You can also save your work as a sequence of individual frames, and this is the only way to save a true 24-bit animation.

Because the program supports all AGA palette modes in addition to the ordinary non-AGA modes, its colour handling is really exceptional and there are many exciting options to help you create the most subtle of effects.

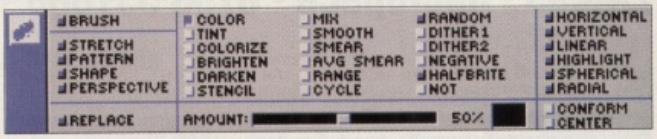
The Draw Mode menu offers access to many fascinating palette modes including Colourize, Tint, Smooth and Negative. These allow you perform simple colour-based image processing operations on all or some of your picture.

The Draw Mode options are supplemented by some of the most flexible and intelligent palette selection and Range creation sections in a graphics package.

The palette lets you create colours using RGB, HSV or CMY colour models which means that you can work in the mode most appropriate to your finished requirements.

The Range requester is where you set up colour ranges for dithered and graduated fills. Not only does it let you specify the speed and way that colours transform from one to the other, it even provides the opportunity for a real-time preview mode where you can see how the finished result will look. This option is only possible because of the program's incredible speed which allows the screen to be updated far faster than *D-Paint 4* could ever dream of.

The speed aspect of this program is not to be under-rated because as the size of the palette increases, the time taken to calculate screen updates gets longer, and in the case of *D-Paint*, can become a very significant irritation when you're trying to work, especially in HAM8 mode.



Brilliance offers more drawing modes than all the other packages put together. They take quite a bit of getting used to though.]

No other package, even on high-end packages like TVPaint, offers you the same powerful options for specifying a colour range and the way that colour transitions should work.]

CONCLUSION

Brilliance really does fill many of the gaps left by other art packages. It has been extremely well designed, and is significantly more powerful than other offerings. Despite having used it for several months now, I still can't get used to doing EVERYTHING without conventional menus, and I wonder if the file requester should have been left in the more traditional format.

Nevertheless, *Brilliance* is significantly faster and more powerful than anything else on the market in a similar price bracket. Much as I love *Deluxe Paint*, it is no longer the best package to use, although at less than half the price of *Brilliance* it still has a place in my collection.

Any Amiga with 2Mb RAM and 2 floppies or 1 floppy and a Hard Drive.

90%

Have You Considered...?

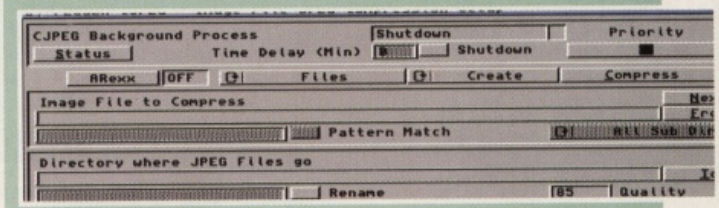
PEGGER

£79.95 - HOBBYTE COMPUTING - 0727 856005

As the size of images increases thanks to 24- and even 12-bit graphics, you'll notice that hard drives which used to seem massive are looking less and less impressive. Heifner communications offer a brilliant solution.

By now, most people are familiar with the concept of JPEG compression, a clever method of reducing the size of picture files to a tenth of their original size or less. *Pegger* is nothing more than a resident JPEG compression program.

The program requires a hard drive in order to run, and once installed, it adds three options to the Tools menu: Snoop, CJPEG and DJPEG. CJPEG stands for Compress JPEG,



The two main parts of the *Pegger* program will compress and decompress any graphics files using JPEG compression. They will even perform two operations imultaneously!]

whilst DJPEG stands for Decompress JPEG. If you select either option they will offer you a requester from which you can select the image to be de/compressed. Having specified the compression ratio if your reducing an image, the program will go ahead and perform the necessary conversion. If you're uncompressing, you will also be given the option to select smoothing, which can remove pixellation effects from images stored at less than 75% quality. *Pegger* offers you a batch mode to perform de/compression upon multiple files in one go, and it also supports ARexx for fully automated integration into your working environment. One clever thing about the program is the fact that you can even compress and decompress two separate images simultaneously!

Snoop is perhaps the nicest part of the program though. It lets you run *Pegger* as a permanent background task which scans any specified directories and invisibly patches itself into all image load and save actions performed in those directories. This means that you could automatically tell the program to scan your *D-Paint* saves drawer, and compress every picture you store there. Better yet, it could be used o compress the output of a ray tracing program as it renders an animation.

CONCLUSION

Although it's not exactly a give away price, Pegger is absolutely invaluable for people who work in graphics, especially if you use a lot of 24-bit images. It is extremely easy to use and worked seamlessly. A very innovative and useful graphics tool.

Any Amiga with Kickstart 2.0 or higher and a Hard Drive.

74%

» PERSONAL PAINT

£45.99 - Micropace - 0753 551888

In a graphics market dominated by highly sophisticated paint packages, you might think that one which doesn't even support HAM mode might be doomed. Not so says *Personal Paint*...

With paint packages ever increasing in price, one which costs less than £50 is a pleasant enough surprise in itself, but when that package stands up favourably against the big boys then it's got to be worth taking notice.

Personal Paint (*PPaint*) has been written by Cloanto in Italy, and as a paint package it is more than adequate provided you don't need to use any of the HAM modes. As an image processing and formats conversion tool, the program stands head and shoulders above the other two.

Like *Brilliance*, *PPaint*'s tools seem to take the best of *D-Paint*'s original ideas, whilst adding to them wholly unique features which improve them.

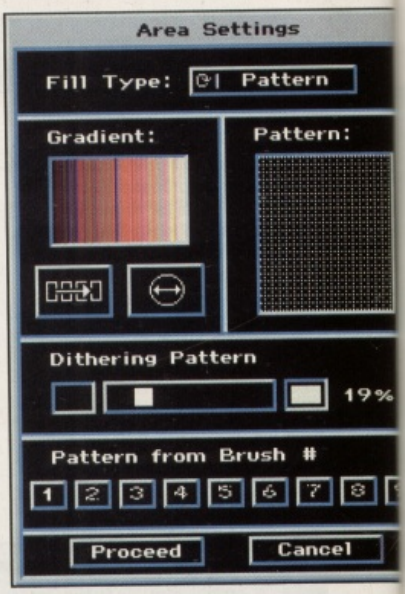
As usual, you'll find stuff like freehand and line draw modes in addition to polygon, ellipse and rectangle tools. There's even a bezier curve option, which incidentally is considerably easier to use than *Brilliance*'s version.

FLEXI-FILL

Click on the Fill icon with the right mouse button and you'll find that the options offered are somewhat different to the *D-Paint* way of working, and are extremely useful when working with a limited palette. At first glance the fill options appear to be much the same as those in any other package: solid, gradient, and brush fills, but then you might notice that although the brush fill mode works much as it does in other programs, the fact that you can choose from any of nine brushes is a great boon. Basically whenever you define a new brush, you can opt to store it in any of the nine RAM spaces for use in the current session. This means that when you're performing operations requiring multiple brushes, rather than wasting time loading them from disk, you can simply select one of up to nine stored in RAM.

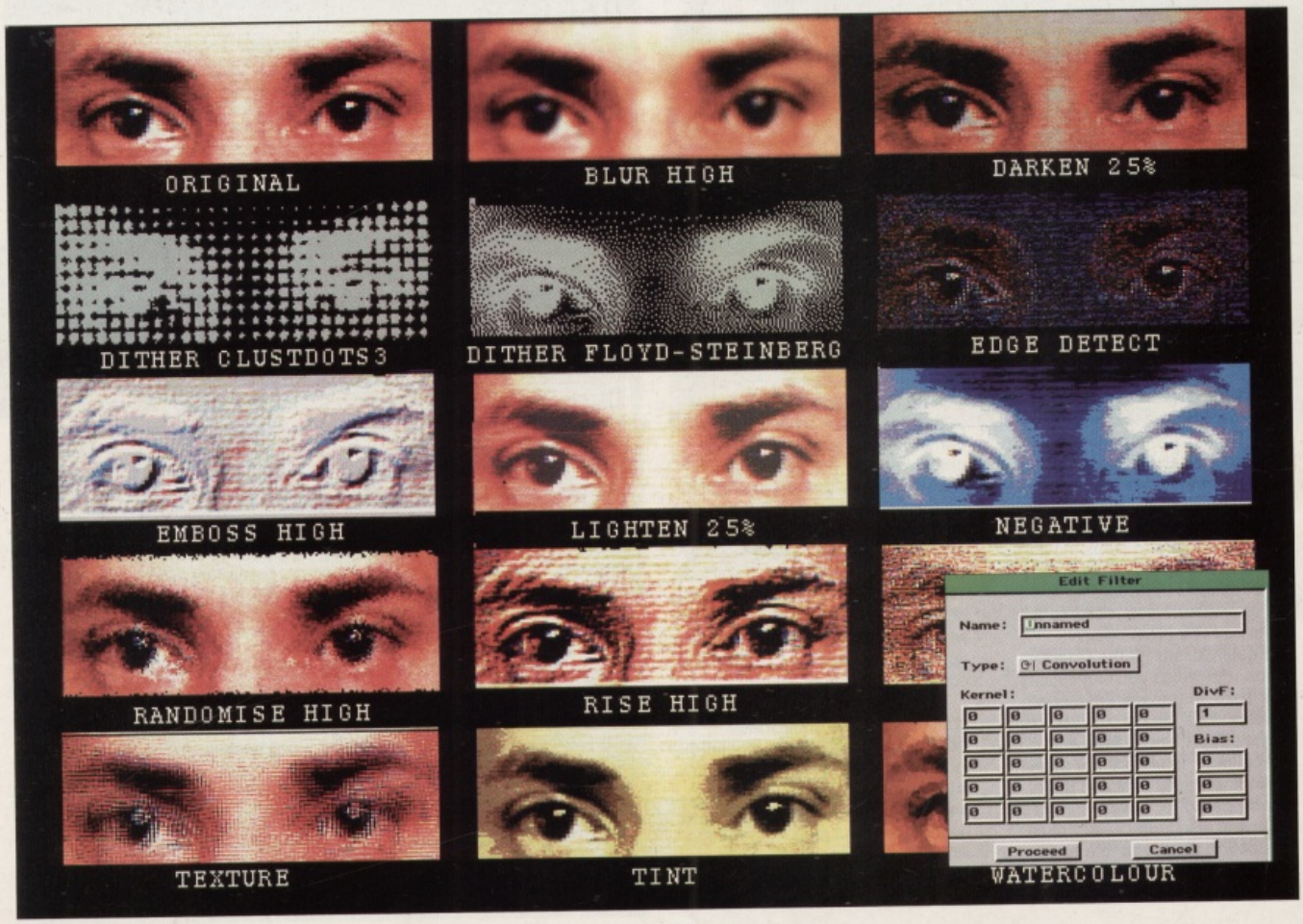
As for the other fill options, gradient lets you perform a dithered fill from one colour to another using what's known as an ordered dither pattern. This means that rather than actually using different colours to represent the graduation from one colour to another, a series of increasingly dense dither patterns are created using just the ink and

PPaint's flexible fill options are one of its greatest strengths.



Above: PPaint offers a good selection of fill types, including a percentage gradient fill which is ideal when you're working with a limited palette.

The result of using just some of *Personal Paint*'s numerous filters. You can even define your own.



paper colours. The advantage of this system is that the apparent number of colours greatly exceeds the actual number in the palette, especially when working in high resolution screen modes. This means that if you don't have much memory, or you don't own an AGA Amiga, you can still create colourful images.

Personal Paint also offers you ordered pattern fills. Again these simply fill the selected area using a single coloured ink and a predefined pattern. If memory is no problem, or you have a large palette, *PPaint* does of course offer the ordinary dithered fill modes as well. You know, graduated fills which blend from one colour to another.

Compared to the other major packages reviewed here, this program's dithered fills are quite tame, with none of the directional or highlighting fills on offer.

POWERFUL PROCESSES

The single greatest feature of this program is its Filter Selection menu. This menu contains a variety of filters which can be applied either to the current brush or selected parts of the screen. These filters perform a variety of functions ranging from the mundane such as Lighten or Negative, to the bizarre such as Texture or Watercolour. Although I've seen options like these accompanying PC programs and software designed specifically for use with a 24-bit board, I've never seen them on budget software before. Better yet, you can even define your own filters to perform »

With a littler patience and effort it's possible to create quite stunning images using *PPaint*'s powerful drawing tools.

What about...?

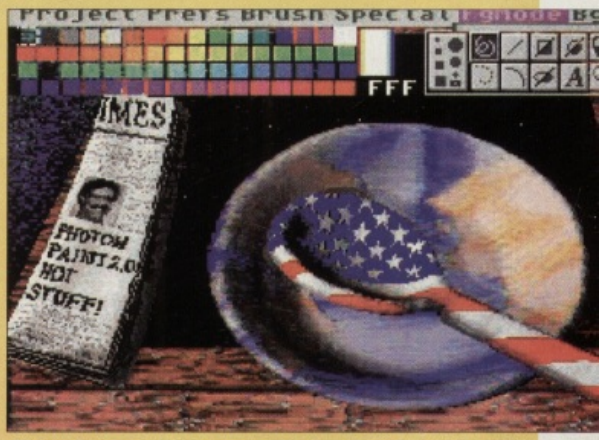
PHOTON PAINT 2

£19.99 - SOFTWARE BUSINESS - 0480 496497

If you want to stimulate your artistic streak for less than the price of a game, then *Photon Paint 2* represents remarkably good value.

Back in the days when *D-Paint* was only on version 2, there were two distinctly separate paths of development in the paint software market; there were the HAM packages and there were the non-HAM ones. At the time, there were no packages that supported both sets of screen modes. *D-Paint* emerged as the winner in that battle because most people disliked the extra effort that's required to work in HAM mode. However, in many respects *Photon Paint* beat the pants off *D-Paint* in terms of features.

At the time Microillusions were market leaders, and their *Photon Paint 2* software was as good as you could get. It had the same old drawing tools, but its real power lay hidden away in its menus.



The FG and BG Mode menus contain a significant number of colour processing options which allow you to perform sophisticated colourising and retouching operations. The Use H and Use H&S options can be used to alter the colour bias of an entire picture (to change it from night to day, or to suggest the glow of firelight for example). The mode menu also contains the Rub Through option which can be used to rub the surface from the current screen so that the spare screen shows through. Another interesting option is Panto which allows you to create an offset so that when you draw, part of the screen from elsewhere is copied to the current cursor position.

One of the most interesting options in a truly feature packed program is called Wrap. This lets you wrap the current brush around a number of predefined 3D objects including spheres, cones and cubes. You can even freehand define the outline of a shape around which the brush should be wrapped.

The program also supports animation, although it's very rudimentary by today's standards, and requires lots of RAM.

CONCLUSION

If *D-Paint* or *Brilliance* managed to incorporate some of *Photon Paint*'s unusual options, you'd see the most incredible art program imaginable. It's features are just way ahead of their time. It's a pity that they can only be applied to HAM mode images, with all the colour problems that implies. Nevertheless, at £19.99 *Photon Paint 2* is an absolute steal, and if you are remotely serious about your computer graphics, this is one that you should buy just to add to your arsenal of drawing tools.

Compatible: Any Amiga with 1Mb RAM **79%**

Using the Rub Through option you can literally rub away the surface of the main screen to reveal the spare one.

» specific functions which you may require. These filters justify the program's expense purely as an image processing tool, let alone as a paint package.

If you have access to a lot of MAC or PC images, you'll be pleased to know that PPaint can load and save industry standard PCX and GIF format screens as well as 2- to 24-bit IFF and code protected IFF files.

Yup, you read that right, I did say code protected IFFs. For some reason Cloanto's designers feel that it`s important to be able to protect your graphics from prying eyes, so they added the option to password protect every screen as you save it! Paranoid perhaps, but I suppose if you were a graphic artist then such an option might be useful.

In fact, to a certain extent the program feels as if it has been designed as a programmer's tool. For starters the actual program code is very compact, in fact it only occupies 210K. This means that it can be used comfortably even on a 512K machine. Of course the greatest give away is the 'Save as C Source' picture save option.

CONCLUSION

Personal Paint is above all a fun program. Its ability to load and save all the common file formats makes it ideal for cross-platform graphics, although its inability to display and save either of the HAM formats is rather inconvenient. Even so, for only £46, the program is cheap enough to add to your collection simply for its Filter effects. Well worth a look, but it doesn't really have what it takes to be your only art package.

79%

Compatible: Any Amiga with 1Mb RAM

An example of some of *Photon Paint*'s excellent FG mode effectcs

What Is HAM Mode...?

It's impossible to read any serious articles on Amiga graphics without the subject of its HAM mode being raised at least once. Reading between the lines you'd be forgiven for getting confused; on the one hand HAM is the super screen mode that the AGA machines display a dazzling 256,000 colours at once, but on the other hand HAM is also too slow for games and causes fringing problems. So what is it about HAM? Does it have personality problems? How did it come to be the Jekyll and Hyde of the Amiga graphics world?

It's actually quite simple, and derives from a clever piece of hardware design which permits far more colours on screen than the number of bit-planes should allow. If you've read the section on bit-planes earlier in this magazine, you'll know that the number of bit-planes used determines the maximum number of colours that can be displayed at one time. Each time you add one extra bit-plane, you double the number of potential colours.

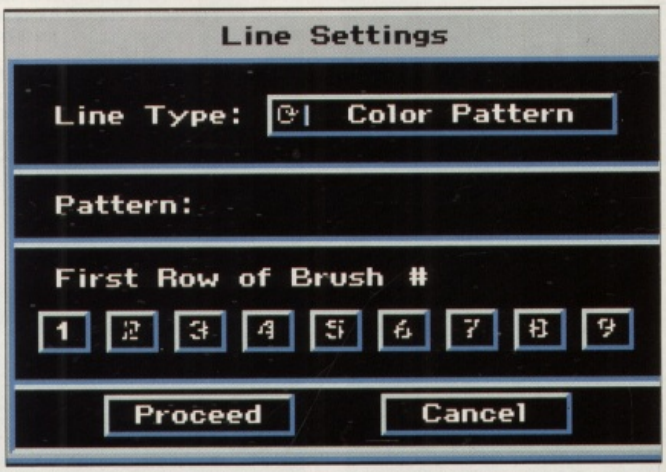
Due to hardware design restrictions the pre-AGA Amigas were only able to recognise five true bit-planes which gave a maximum of 32 possible colours (2x2x2x2x2=32). Remember each bit-plane has two possible states, and adding an extra one increases the total palette by a power of two.

Now we come to the clever bit; when you use HAM mode, rather than refer to the full RGB value of a pixel, the computer restricts its colour so that it can only differ from it predecessor (the pixel on its left) by one colour component, red, green OR blue. This means that instead of having to store each pixel's full RGB values, only the modification to one of those values needs to be recorded thus occupying less bit-planes than would otherwise be needed.

The only trouble with this system arises when you wish to place two colours adjacent to each other which are different in all three RGB components. Basically, you can't because it would require three pixels of distance to transform from one colour to the other, and this often causes an undesirable smear effect known as fringing. Obviously if the pixels only differ by two components, then it will only require two steps to transform from one colour to another.

Furthermore, because the colour of every pixel on the screen is dependant upon the colour of two others, it requires far more time to redraw the screen in this mode, making it virtually impossible to use for any sort of fast action, especially games.

Even predefined animation can be difficult in HAM mode because you're never quite sure what fringing effects may occur as you move parts of the screen.



One of the unique things about Personal paint is the way that any brush from the nine brush buffers can also be used as a drawing tool.

PAINT PACKAGE FEATURES COMPARISON

	DPAINT 4	BRILLIANCE	PERSONAL PAINT
PRICE	99.99	194.95	46.95
SPEED	SLOW	FAST	GOOD
MEMORY NEEDED	1MB	2MB	1MB
MANUAL	EXCELLENT	ADEQUATE	DULL
INTERFACE DESIGN	ADEQUATE	GOOD	GOOD
OVERALL DESIGN	GOOD	EXCELLENT	MODERATE
PALETTE SELECTION	AVERAGE	VERY GOOD	GOOD
# OF DRAWING TOOLS	ABOVE AVERAGE	VERY MANY	AVERAGE
# OF FILL TYPES	GOOD	EXCELLENT	GOOD
GRADIENT DITHERING	GOOD	EXCELLENT	VERY GOOD
STENCIL MODES	VERY GOOD	EXCELLENT	GOOD
HAM SCREEN MODES?	YES	YES	NO
NON-HAM MODES?	YES	YES	YES
AGA SCREEN MODES?	YES	YES	YES
IMAGE PROCESSING	MINIMAL	MINIMAL	SUPERB
LOAD/SAVE OPTIONS	ADEQUATE/POOR	ADEQUATE/ADEQUATE	VERY GOOD
24-BIT LOAD/SAVE	YES/NO	YES/YES	YES/NO
MAGNIFY OPTION	ADEQUATE	VERY GOOD	ADEQUATE
PERSPECTIVE	EXCELLENT	ADEQUATE	NO
MULTIPLE UNDO/REDO	NO	YES	NO
# OF BRUSHES	2	8	9
# OF SPARE SCREENS	1	INFINITE	1
BRUSH HANDLING	GOOD	SUPERB	VERY GOOD
TEXT HANDLING	POOR	ADEQUATE	VERY GOOD
ANIMATION?	YES	YES	NO
ANIMATION OPTIONS	OK	VERY GOOD	NONE
ANIMBRUSH SUPPORT	YES	YES	NO
ONION SKIN	YES	NO	NO
MORPHING	YES	NO	NO
PRINTING	GOOD	POOR	OK
GRAPHICS PAD	YES	NO	NO

IMAGE PROCESSING

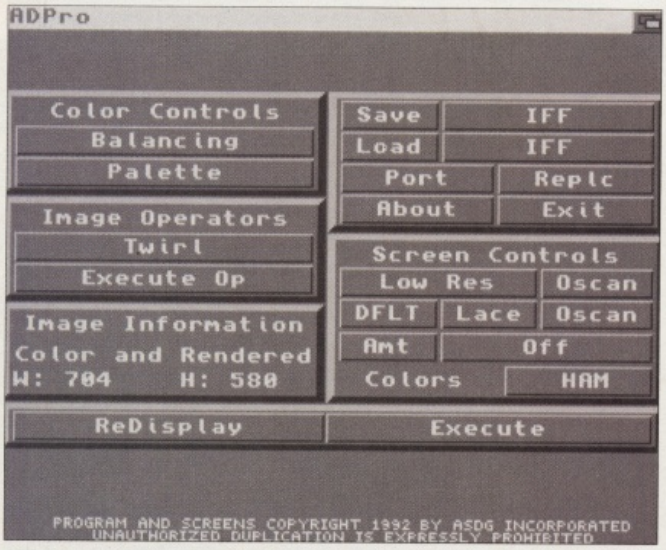
As the Amiga is exploited more and more frequently as a video production tool, software production tools have also become increasingly significant. Image Processing is one area that has seen particular growth over the past year, and a variety of packages have appeared to fill what vacancies there may have been in this already lively field.

Thanks to image processing tools, complex and seamless modifications can be made to images in minutes, whereas previously these same processes would have required hours of hand-drawn work.

Over the last few years, image processing programs have come into their own. So, if you want to bend it, warp it or generally contort your pictures into any shape or form, then climb on-board the image processing bandwagon...

ART DEPARTMENT PROFESSIONAL

£199.99 - MERIDIAN DISTRIBUTION - 081 543 3500



***ADPro*'s somewhat spartan main screen is likely to cause you culture shock if you're only used to art packages.**

In the world of Amiga image processing, ASDG's *Art Department Professional* has ruled the roost since the very first version was released. Let's see what they have to crow about.

Whereas paint packages provide you with the tools needed to create images from scratch, image processing software is primarily concerned with manipulating existing images.

Art Department consists of three basic sections: loaders and savers, image processing and display options.

FILE FORMATS GALORE

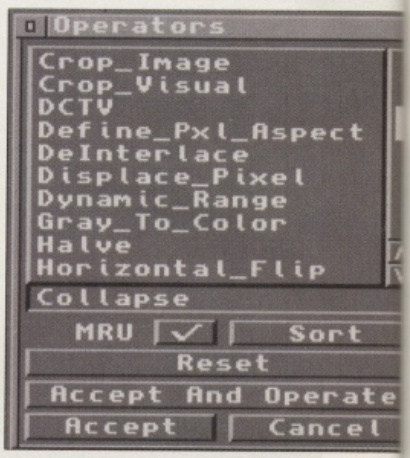
Whenever you load an image, you can specify the file format it's stored in. An appropriate loader module will then be used to ensure that the picture loads correctly. If you're not sure of the exact format a screen is stored in, the Universal module will attempt to work out the best load format. When you've finished working on an image, you can also specify the save format, and again the appropriate saver module will be automatically activated by the program.

There are a number of advantages to using this modular approach to file handling. For starters, the overall program size is kept to a minimum because only the current load or save module needs to be stored in RAM. This is an extremely important point because whenever you load a image, it is converted into *ADPro*'s internal 24-bit format. 24-bit images are notoriously RAM hungry, and *ADPro* is far from economical in its management of memory. You'll need a minimum of two megs, but four or more are recommended by ASDG. I have six megs on my A1200 and I constantly run out. ASDG do suggest a number of memory saving techniques, the most useful of which is the ability to disable what they call Enhanced Palette Support. In other words, images will no longer be manipulated in 24-bit colour. On pre-AGA machines this is an acceptable option but on the A1200 and A4000, colour accuracy will be forfeited, and the resulting image will suffer slightly as a result.

Another plus feature of the modular approach to file handling is that the program never needs to become out of date. If a new image format appears on the market, ASDG simply develop new loader and saver modules and the program is kept bang up to date. The program comes with 28 loaders and 19 savers ranging from the common ones such as IFF, GIF, HAM-E, JPEG and TIFF to the exotic and rarely used stuff like QRT, BMP, BACKLINE and ALPHA.

Unless you own a graphics board, you'll probably use the IFF, GIF and JPEG modules the most often. The JPEG module is particularly useful because it provides a method of compressing pictures, especially 24-bit images, to a fraction of their original size. Although JPEG compression is only really suited to non-hand drawn images, the results can be stunning yielding compression rates of up to 90% in some cases.

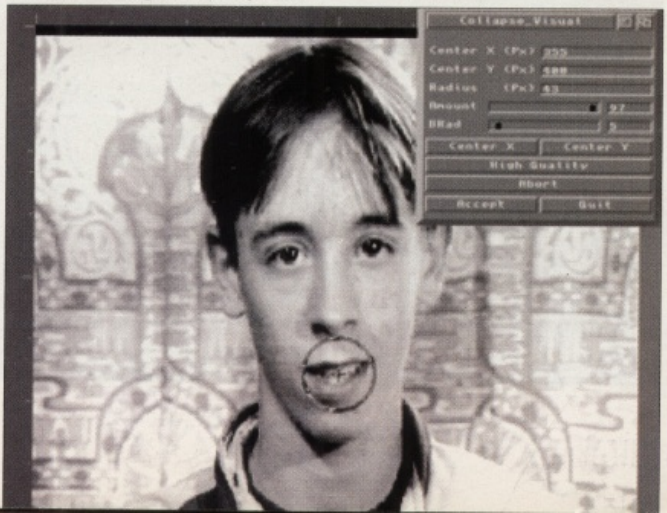
Once you've actually got an image into the program, there are a variety of operators that can be used to perform changes on it. Again, these operators are supplied in a modular format, so new ones can be added as and when they're developed.



***ADPro*'s operators are used to perform a variety of effects upon your images.**

TIME TO OPERATE

For pro and semi-pro users the operators are probably the most important part of the program. They perform a vast range of functions ranging from the mundane, to the bizarre. In all likelihood, it will be the mundane ones such as Scale (which re-sizes an image), or colour to grey which are used the most frequently.



Even when using 24-bit imsges, *ADPro* shows you a grey scale preview screen so that you can set up the operation.

Have you considered...?

PROFESSIONAL CONVERSION PACK

-£79.95 - MERIDIAN DISTRIBUTION - 081 543 3500

Although the Amiga is well known for its superb graphical abilities, there are occasions when you'll need to exchange data produced on other computer systems. ASDG's *Professional Conversion Pack* makes the job easier...

ADPro is supplied with loader and saver modules which will let you exchange data with a variety of the most popular Amiga graphics boards. The program even supports a few common non-Amiga formats such as GIF and MacPaint. However, if you want to exchange graphics with the high powered commercial systems, this package of additional loader and saver modules may be exactly what you need.

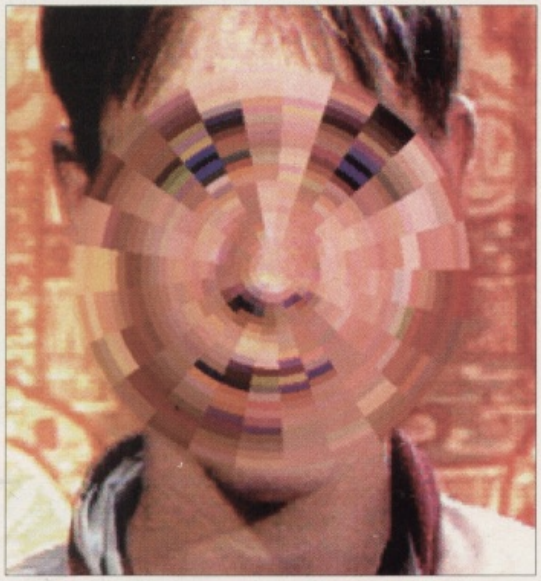
The pack comes with five sets of loader and saver modules: Rendition, Sun, Targa, TIFF and X. The Rendition format is used by programs such as *Caligari*, and information saved in this way can also have Alpha channel information restored and used to control compositing functions.

The Sun format is used by the expensive graphics workstations, and means that your Amiga's output can be integrated with TV studio graphics.

CONCLUSION

The professional conversion pack is not going to be a lot of use to the majority of *ADPro* users, but to a minority of power users it will be essential.

Needs: ADPro and any Amiga capable of running it. 80%



ADPro's polar routine performs a radial pixellisation operation upon an image and its size and focal point can be user-defined.

However, I can't over-emphasise the sheer fun that some of the more exotic options can give you. Operations like twirl which can be used to rotate a section of the picture by any amount, or collapse which makes a section of the picture fold in on itself. The mere existence of many of the operators is like a shot of adrenaline for your creative ego.

If you're processing an animation, the program can automate the process for you using ARexx. An additional program called *FRED* (FRame EDitor) is also supplied with the program, and it is this that is used to perform batch operations on animations.

Once you've used the operators, you can choose to render the picture to any graphics board that you may be using, or simply to the screen if you don't have a board. Among the more popular boards that the program supports, it can output to Firecracker, Impact Vision 24, Opalvision, DCTV and HAM-E. It also recognises both the AGA machines and the earlier Amigas, and can output images in all Amiga screen modes.

CONCLUSION

Art Department 2.3 is extremely powerful and friendly to use, although compared to older image processing packages such as *Butcher* or *Pixmate*, it is significantly different to work with. The reason for this is that whereas with the former programs you simply load an Amiga screen and then perform operations upon it, all the time being able to see what`s happening, most of the *ADPro* stuff happens out of sight. Even so, once you get used to using it, *ADPro* really is very impressive in its range of abilities. This is one of those tools that you just don't realise how much you need it until you own it for a little while. Indispensable. 89%

Compatible: Any Amiga with at least 2Mb of Fast RAM

Have you considered...?

PROCONTROL

£69.95 - MERIDIAN DISTRIBUTION - 081 543 3500

If you spend a lot of time working with multiple images, you may have already tried to use *ADPro*'s ARexx control. If you'd prefer an easier method then *ProControl* is your best bet.

The program is like a computerised conveyor belt, controlling the flow of images through Art Department. The program is ideally suited to batch processing animations, and by defining non-stationary effects you can even make your own animated effects such as motion blur, etc. *ProControl* uses an entirely graphical approach to batch handling so there's no complicated or time consuming scripts to learn.

CONCLUSION

ProControl is designed to simplify your life when processing lots of images in *Art Department Professional*. Although it is by no means an exciting product, it works well, and what more can you ask?
Needs: ADPro and any Amiga capable of running it. 80%

»

IMAGE FX

£199.95 - SILICA SYSTEMS - 081 309 1111

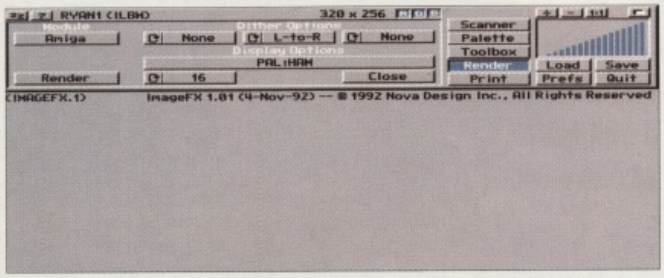


Image FX combines a top quality image processor and file format convertor with a powerful if somewhat cumbersome 24-bit paint package.

Primarily known for their innovative hardware, it was a little surprising to see GVP entering the software market with *ImageFX*. True to the high standards set by the company, the program is an ambitious piece of software which is aimed directly at the current market leader.

Art Department Pro has gradually evolved over a number of years to become the undisputed king of the Amiga's image processors. It seems a little strange therefore, to see total newcomers GVP enter the software market with a package that aims to topple the giant in a single blow. Given a moment's reflection though, perhaps *Image FX* was not such a bizarre release, after all GVP do produce arguably some of the best graphics boards available on the Amiga.

A GAGGLE OF PROGRAMS

Image FX is, in fact, several programs rather than just one. The first and probably last thing that you'll encounter are its loader and saver modules. Available for just about every Amiga file format known to man, and many which aren't even Amiga specific, the program can be used to transfer files between most proprietary boards and file formats including DCTV, HAM-E, GIF, JPEG, IFF and loads of others. Alternatively you can use it to control an Epson or Sharp scanner directly. This latter point is exceptional because ASDG charge over $100 for the scanning add-on for *ADPro*. However you choose to get an image into the program, the image data will be immediately converted into 24-bit format.

Having loaded an image, if you have a 24-bit board connected, you can immediately render it in the maximum number of colours that the board is capable of. In practice, although this is essential for checking how the finished image will look, 90% of your time will be spent staring at the work screen which contains a grey-scale representation of your image and the tools you need to manipulate it.

By default the program loads in paint mode. In other words the tools at the bottom of the screen are designed primarily for drawing. As a paint package the program is rather strange to use because you don't actually see what you're doing in colour until you choose the Render option from the menu. The screen you're working on is displayed as a grey scale image but can be rendered in any mode you want, chipset permitting...

The reason that GVP have taken this somewhat unusual approach is so that you can load and edit 24-bit pictures, even without a 24-bit graphics board.

The selection of drawing tools is as basic as you could hope to find, but then I suppose the assumption is that if you wanted a paint package, you'd have bought one in the first place. Far more interesting are the list of options that you can apply to a picture after it's been drawn.

As with *ADPro*, *Image FX* comes complete with a large selection of operators (more than the former package) and rather than hiding them away in little menus, they are laid out on the main Toolbox screen ready for use.

A NEW SURGEON IN TOWN

All of *Art Department*'s operators seem to be there as well as a number of new ones too. One of the more spectacular ones is Wave which redraws the picture as if it were the surface of a pond which has just had a pebble thrown into it. Another nice one is oil transfer which supposedly turns the image into an oil painting, although I think that a water colour would be more accurate.

A great bonus of this program is the fact that *Cinemorph* is provided with it free of charge. As its name suggests, *Cinemorph* is a morphing program along the lines of *Morph Plus*.

Cinemorph can be loaded as a stand alone program or via what are known within *ImageFX* as 'hooks'. Hooks require ARexx in order to operate and they provide an easy way to link up to other more powerful image processing effects modules.

Using *Cinemorph* it's possible to create animations such as those seen in Godley & Creme's 'Cry' video, or Michael Jackson's 'Black or White' video.

One of the most useful advantages that *ImageFX* has over *Art Department Professional*, is its use of Virtual Memory on hard drive based systems. What this actually means is that the program can use your hard drive as memory if you run out of 'real' RAM. This is a tremendous advantage because it means that you can use the program for commercial quality image conversion where you're dealing with huge 24-bit bit-maps. Of course, using the disk drive as RAM does slow things down a tad, but the speed difference is by no means unbearable.

CONCLUSION

Much as I enjoy using *ADPro*, I have to say that *Image FX* is better in just about every respect. It's easier and more logical to use; the user-interface is friendlier; it has more features; it includes scanner support as standard; it includes more operators; it has drawing tools; it provides you with a constant preview screen and it includes morphing in the same package. *ADPro* was superb, but *FX* is better!

Compatible: Any Amiga with 3Mb RAM and Kickstart 1.3 or higher. Hard Drive required for Virtual RAM feature.

91%

With a face like this, the least we could do was distort his hideous looks using the image manipulation tools within *Image FX*!!!

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ANIMATION PACKAGES

MORPH PLUS

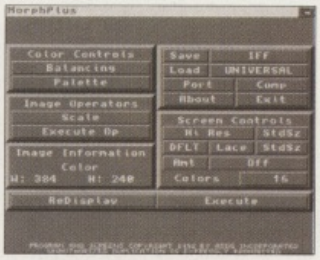
£199.95 - MERIDIAN DISTRIBUTION - 081 543 3500

In case you haven't watched television in the last year, morphing has become big business. Everyone's doing it, turning snails into frogs, cars into tigers and men into women. Now Amiga owners can get in on the act thanks to *Morph Plus*.

Morph Plus actually consists of three separate programs: *Morph Plus* which is the main program, *Morph* which is the part that's actually responsible for performing the transformations, and *FRED* which is used to process entire animations. Whilst *Morph Plus* can be run as a stand alone program, the other two require the former to be already running in order to work. Alternatively, *Morph Plus* can be accessed via *Art Department Pro* if you own it.

Lee turns into bushbaby boy with a little help from the Warp operator.

The program can be used in one of two ways: as a generator for animated sequences where images are transformed from one to another, or as a stand alone effects generator, similar to the Operators in *ADPro*. Of course, it's for the program's animation abilities that it has become most popular.



If you run the program in conjunction with *Art Department Pro, Morph Plus* becomes even more powerful.

HOG EATS RAM

To perform a morph, you'll first need to load two images, which will be converted into 24-bit data as you do so. Naturally, this is extremely RAM intensive, and the program requires a bare minimum of four megs, although eight is recommended.

These images will be displayed in grey scale mode, which means that whatever Amiga you're using you can at least see representations of the images you're working on. Once you've loaded the two images, it's time to define the motion paths that will be used. What this basically means is that you must indicate which parts of the first picture will transform into which parts on the second. If you're working with two similar subjects (two faces for example) this isn't a particularly difficult task, although it is an extremely time consuming, and dare I say, arduous one. Things become a bit more complicated when you're morphing between two utterly dissimilar objects; a telephone and a rabbit for example. Then you need to give some care to the relationships and movement paths that are defined if you are to avoid paths which cross, or animations which make your stomach turn.

As you've gathered by now, having linked areas of the two pictures, you also need to define the direction and speed of any transformations. You can alter the speed globally, or you can specify the rate at which individual points and groups move. You can even specify variable transformation rates for the same group of points.

Having defined all of this, it's time to render the changes. Because this can be very time consuming, especially in full 24-bit on non-accelerated Amigas, you're advised to take advantage of the lower colour resolution preview modes, as well as working with reduced size images.

To morph one object into another you first need to painstakingly link every point on the two pictures with a movement path.

INPUT OVERLOAD

To be honest, the program is more than a little intimidating at first, and the examples in the manual naturally work out far better than your first attempts are likely to. For starters the choice of images, as well as their position and orientation plays a significant role in the success of the finished result.

As I mentioned earlier, the program can also be used for single frame image processing. It`s crystal clear that the program has come from ASDG for not only is the interface very similar, but its image processing operators are the same too, although Morph has some extra ones that ADPro doesn`t. Warp for example, can be used to stretch parts of an image in the most disturbing manner, whilst the perspective operator is one of the most friendly and accurate ways of moving a two dimensional picture into three dimensions that I`ve seen.

CONCLUSION

There's no doubt that *Morph Plus* is one of the most incredible and powerful graphics processing tools available. It contains the most interesting bits of *Art Department* and *Image FX*, although sadly it doesn't include the drawing tools that make *FX* so useful. It's hard to see why you'd want to buy *ADPro* if you already own *Morph Plus*, after all *Morph* has more operators, and performs metamorphosing animation.

The program can be rather tough to get to grips with but once you do, you're in for a real treat. Definitely worth a serious look.

Any Amiga with Kickstart 2.0 and 4Mb Fast RAM.

80%

As you can see on this magnified preview, defining warp paths tells the computer what part of the screen to move to which location.

What about...? CINEMORPH

£24.95 - SILICA SYSTEMS 081 309 1111

Included free with *ImageFX* or as a very reasonably priced stand alone product, *Cinemorph* is a direct rival for *Morph Plus*.

It uses a complex mesh of lines and points to define the control points and relationships in an animation. If used as part of *Image FX*, a few extra options such as a magnify mode are available. However, whichever version of the program you use, *Cinemorph* takes quite a while to get to grips with.

Given the extra effort, *Cinemorph* is pretty much capable of the same kind of results as *Morph Plus* although if you can afford it, you're far better off to buy *ImageFX* and get *Cinemorph* for free. Then you'll have a great image processor as well!

Compatible: Any Amiga with Kickstart 1.3 or higher AND 2MB FAST RAM

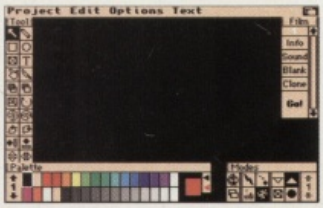
74%

FANTAVISION

£N/A - HOBBYTE COMPUTING - 0727 856005

If the thought of getting into professional image processing and animation gives you the chills, perhaps *Fantavision* will be more your speed.

Developed as a direct rival for *Aegis Animator*, *Fantavision* was developed by Broderbund in the States, and was originally distributed here in England by Domark. Instead of going for the high powered, hi-tech approach adopted by *Morph Plus*, it does a little morphing of its own using an utterly different technique.



ANIMATION ANATOMY

A *Fantavision* animation is comprised of several elements: bit-mapped scenery (both foreground and background), animations (both structured and bit-mapped) and sound effects.

To start with, you may load in scenery in the form of screens which may be in any of the pre-AGA modes up to and including HAM. Having loaded the background, it's time to define the objects in your animation and their starting positions. These objects may be *D-Paint* brushes, or structured drawings. If you choose to load *D-Paint* brushes, they can be moved around the screen in any way you like, but may not be animated in any other way. However, the real power of the program lies in its ability to handle structured drawings consisting of no more than a series of connected points filled in by the colour of your choice, rather like solid dot-to-dot pictures.

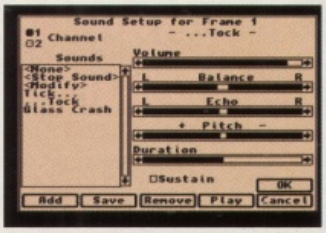
Although these pictures may seem crude, they offer far more flexibility than other systems, and with enough care can create very impressive animations indeed. You see the whole secret behind this program lies in its ability to calculate the movement of objects from one frame to another. Here's how it works: you start off with a certain shaped object in position Q on the screen. Now you go to the next frame which you define as being X seconds in the future and you move both the position and shape of object O. *Fantavision* provides a number of tools to help you do this, ranging from a rotation tool that lets you rotate an object around any axis, to a re-size and distort tool. There are also a variety of other ways to reshape your object.

Now, having placed it in its new position, you can tell the program to calculate the intervening frames. It will then move each point in your object to its new location at the rate specified. Provided you take care not to accidentally cross the movement paths of the points over, *Fantavision* will generate extremely smooth transitions from one frame to another.

LOOK OUT STEVEN!

Now this in itself is exciting enough, but when you add to it the ability to associate sound samples with each frame, you can soon see how easy it could be to create mini movies. In fact there are a number of very impressive demos supplied with the program, including a prehistoric scene in which two pterodactyls wing their way across the screen, one into the distance and the other horizontally from left to right. Soon after, a long necked dinosaur wanders into the field of view, and gracefully arches its neck up to branches of a tree where it snatches some leaves from a high treetop and munches them before gliding off the screen. All the while we hear the hum of insects and the occasional bird call reinforcing the realism of the swampland scene.

The program will work out your animation for you. All you have to do set up certain key frames.

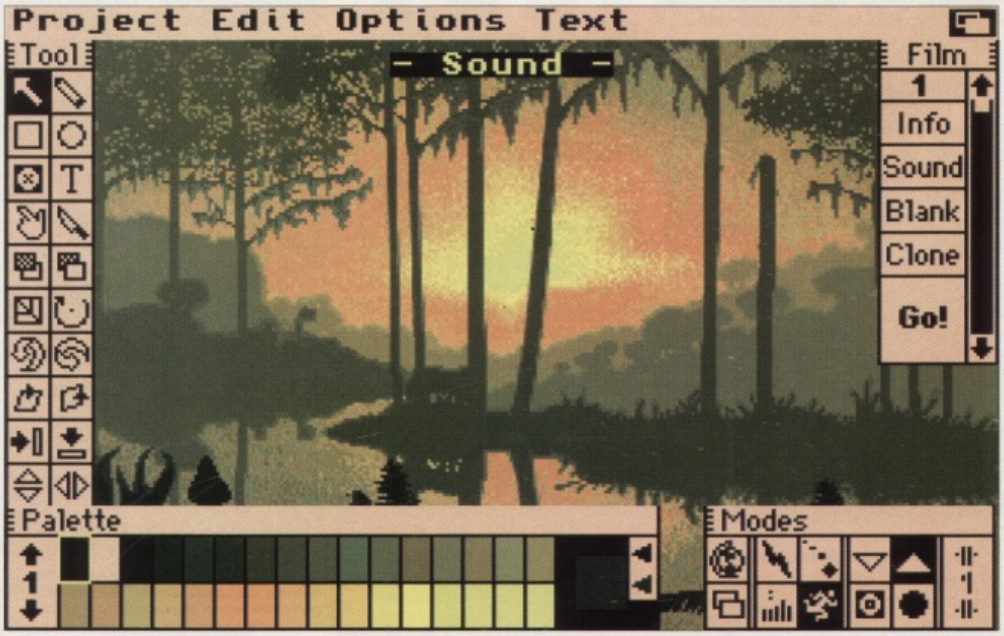


You can add sound samples to any frame of animation to give your productions that extra bit of realism.

Talking about the program's sound options for a brief moment, you can choose a sample and specify its volume and pitch, as well as its duration. If the sample is looped you can simply leave it to repeat for the duration of the frame or animation. You can even specify whether the sound appears from the left or right speaker, and whether it should have an echo, and if so after what time period and through which speaker. Considering the fact that this is primarily an animation package, it really does handle sound very well indeed.

When you've created an animation, you can save it as a movie, and this movie can then be replayed independently of the program using the Fantaplayer program supplied with the package.

You can also load and animate bit-mapped images if you prefer.



You can load any IFF picture as a background for your animations.

CONCLUSION

Although *Fantavision*'s user interface now looks extremely dated, this is a fun program which, with a little effort, can reward you with some very good quality animation. Unfortunately it can't use the colourful new AGA screen modes which is a great shame, especially for video users. Nevertheless, you could use it to create impressive video titles, or if you're a lot more ambitious, you might even like to have a go at your own cartoon.

Compatible: Any Amiga. 70%

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ZERO 87%

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ACE 94%

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Commodore
Amiga
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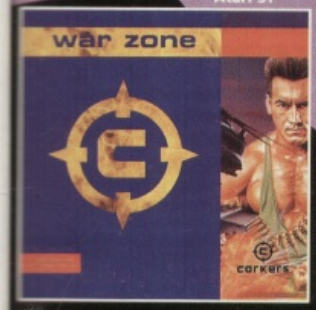
IBM PC

Commodore
Amiga
Atari ST



ZERO 88%

"The scrolling, animation and colour are all of a high standard, but it's the play that wins the day. This is particularly true of the two-player version, but even for one player, the action is tough and just keeps on going... War Zone is an excellent arcadey shoot-em-up."

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DELUXE VIDEO III

£99.99 - ELECTRONIC ARTS - 0753 549442

Using a scripting program can help you to create complex animations which last far longer than conventional methods. It's also a good way to create eye-catching demos without slashing out hundreds on a top end system such as *Scala*.

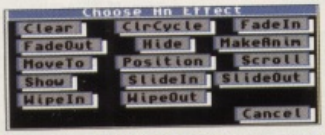
Created as one of Electronic Arts' Deluxe Series of productivity tools, *Deluxe Video* is perhaps the least well known of all, ranking down there with *Deluxe Print* in the obscurity stakes. This is a shame because as the Amiga community finally starts to realise the benefits of multimedia, this program is available quite cheaply and yet compares very favourably to the more flashy programs of today.

A QUESTION OF TIMING

The package consists of several separate programs of which DVMaker is the first one you'll need. It provides a way of creating time-line based screen effects and animation without going to the effort of learning a complicated professional system.

The program basically consists of a series of scenes which are arranged in any order along a time line which represents the show. Each scene may consist of one or more actions upon which effects are applied. These effects are the central part of the program for they are what transform your scripts from being mere slide-shows into interactive movies.

For example, you define scene one as having a duration of ten seconds. You go into the scene editor and specify the load screen option. You then apply to that option the Fade In effect which will commence immediately and have a duration of 3 seconds. The effect is shown as a flag which is pinned to that scene's time line. The flag is connected to the time line by two arrows and by moving the first of these left or right, you specify when the effect should start. The distance between the two indicates how long the effect will last for.



Deluxe Video provides a selection of useful musical effects and transitions.

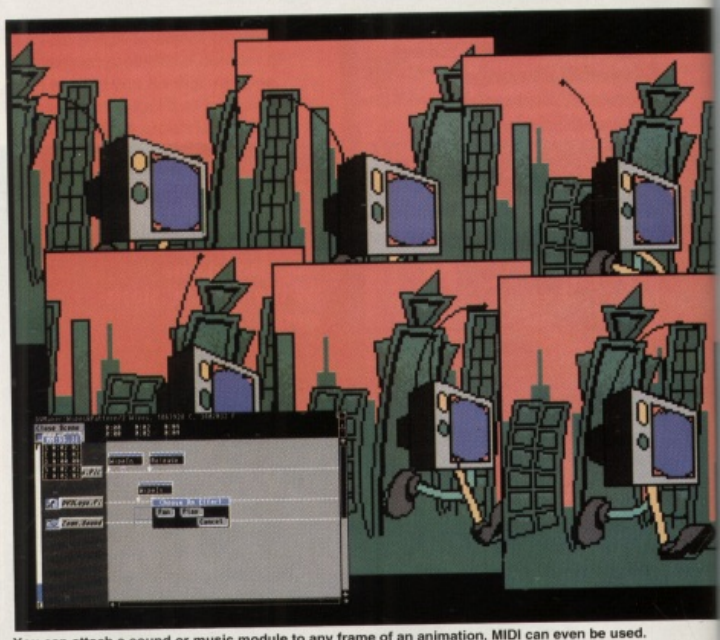
Now below the first time line, you define another which replays a sound effect. As with the picture, the sound does not start playing until activated by an effect. This time the effect merely starts the sound playing say, for example, three seconds into the scene. After another second the pitch of the sound is raised by a second effect, and a third is used at the seven second mark to pan the sound from left to right.

In yet another time line an animated character might be loaded, and this character can be scrolled across the screen at any time.

By now it should be apparent how multiple time lines may be used to activate various events which may run concurrently or may be interleaved chronologically. Each time line in a scene is related to a specific media action, a screen, animated brush, sound or piece of music for example. In fact it's even possible to use the program to trigger MIDI events, which means that you could create an entire stage show if your computer was MIDI linked to MIDI lighting, music and effects devices. Unfortunately the program's MIDI control is far from sophisticated as it can only output SMUS tracks using up to eight channels.

The program offers a very impressive range of options, and the demos that come on two of the four disks are quite appetite whetting. Even something as simple as displaying a screen offers 24 different options covering an intriguing variety of effects which you can activate to accuracy of 1/60th of a second, which should be more than enough for the average user.

If you use ARexx, *Deluxe Video* can be used to control external hardware such as video recorders.



You can attach a sound or music module to any frame of an animation, MIDI can even be used.

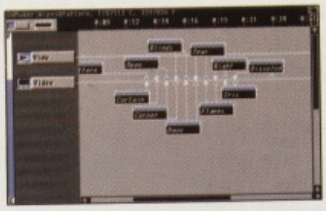
You can also design interactive products where the user is required to give some sort of input.

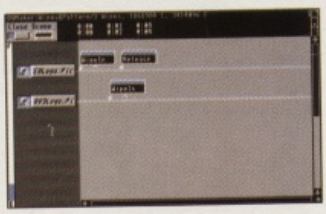
CONCLUSION

To be honest I really didn't expect much from this program in an age of ever increasing sophistication, but I was very pleasantly surprised. It took no more than ten minutes to create my first script, and the program is a complete doddle to learn, though as always the rewards are greater if you devote more time and effort to your work. The system is extremely flexible and intuitive. Once you've learnt the very basics, you can learn the rest on a 'Wonder what this does' basis. It looks good on Workbench 2.0 despite being released before it was available. Because of the program's age, it can be found on the bargain shelf of many software shops, but don't be fooled, this is well worth its original £99.99 asking price so anything less is a sheer bonus.

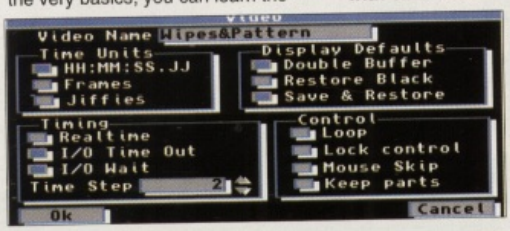
Compatible: Any Amiga with 1Mb RAM

82%

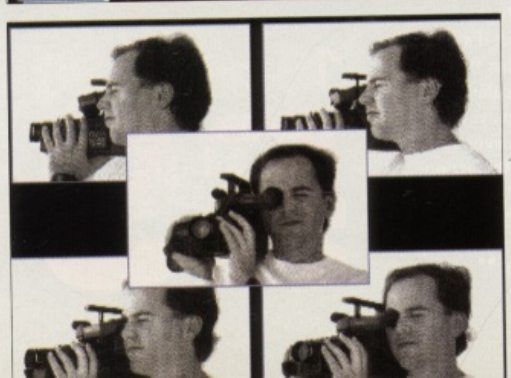




Each production can be viewed as a show which gives you an overview of the entire thing, or as a series of scenes which lets you view and edit the individual acts of a performance.



You can specify the timing of your production to an accuracy of one Jiffy. That's a 60th of a second to you and me!



The program supports the use of animations, anim brushes and page flipping. This scene was created using an anim brush.

DISNEY ANIMATION STUDIO

£79.99 - INFOGRAMES - 071 738 8199

Of all the programs reviewed here, only one can genuinely claim to have the endorsement of the world's most famous animation studios, but does that mean that the *Disney Animation Studio* is any good?

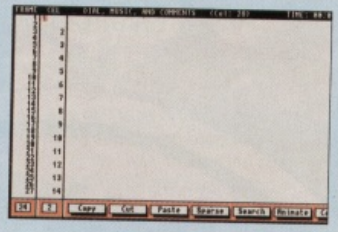
Traditional animation of the kind that made the classic cartoons is a an arduous task requiring the dedicated work of many people to produce even the shortest animations. The computer has played an increasing role in reducing the amount of effort and time needed to create animation.

Although morphing and tweening is all very well for certain types of movement, high resolution cartoon style graphics must still be largely drawn by hand. One of the most basic techniques in creating animation on paper is known as 'onion skinning'. This involves drawing the character to be animated on transparent, or semi-transparent paper. When it comes to creating the next frame of animation, another sheet of transparent paper is overlaid on the first and the animator can then see exactly where changes need to be made. Because a lot of the time, parts of the character do not move at all (the body of speaking characters for instance), onion skinning also allows the animator to quickly trace those parts of the drawing which will remain unchanged.

ONION SKIN OPERATOR

This is the entire basis for the *Disney Animation Studio*. Although it contains a few very primitive drawing tools, it certainly doesn't claim to be an art package. It's entire raison d'etre is its ability to display four levels of onion skinned images, each a shade darker than the last.

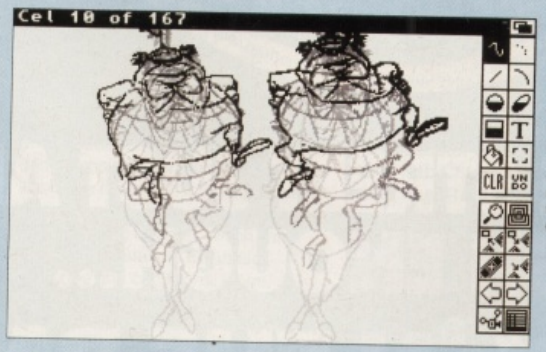
The program also includes a section called Exposure Sheet from where you can cut and paste the frames of your animation in any order you like. You can also add music and sound effects to your work, which seems a little incongruous considering the relatively basic nature of other parts of the program.



CONCLUSION

The program is actually co-produced by Walt Disney Computer Software, and a specially commissioned Donald Duck animation accompanies the program. Much as I love the animation, I found the program to be hard work compared to D-Paint and its peers. I daresay that compared to using tracing paper and a pen, this is a doddle, but as I never did that in the first place I can't really comment! If you're an animation purist, you won't be able to do better than this, but if you want something a bit more flexible try elsewhere.

Compatible: Any Amiga. **75%**



You can see here two frames of animation. The frames may look cluttered by the grey after-image but in fact that image is the onion skin effect at work and it can make an animator's life much easier.

The program is supplied with a disk full of professionally animated sections which have been designed to teach you the basics of the craft.

Canny Professionals

If you have a video digitiser, you can save yourself hours of effort by using a professional animation 'cheat' known as rotoscoping. Employed by Walt Disney Studios in the making of Sleeping Beauty, rotoscoping is a technique whereby you take a film or video of the real world and use that as the outline to trace simpler cartoon style graphics.

If you have a video camera or video player, try digitising a few sequential frames of a relatively uncluttered image. If you're using a real-time digitiser this will be easier, but if you're not you'll just have to manually move the video still on by a few frames or turn the camera slightly.

The next stage is to convert your image into a line drawing. If you are using one of the new Rombo digitisers, your software already contains an Edge option. *Art Department Pro* also contains a similar option, but you'll need to convert your picture into a grey scale image first. Having created an outline of the objects to include in your animation, all you have to do is fill them in solid colour and your basic frames are complete.

Now all that remains is to go into the animation package of your choice and link the frames to make a proper anim file. Bob's your uncle, rotoscoping made easy!

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SCALA MM210

£149 - SCALA UK - 0920 444294

Scala MM210 is ideal for a variety of multi-media projects, and can combine graphics, animation and sound. This image took about 30 seconds to create.

If you need to produce eye-catching multimedia presentations, which can be interactive or completely automatic, *ScalaMM210* is your best option.

A presentation (or script as its known) can include text, animations, music and samples. It can accept optional input from a viewer via the keyboard, joystick, mouse, or touch screen, making it easy to produce informative displays of professional quality for use in places such as museums, shopping malls, etc. where the end-user may not be computer-literate. For that matter, no great experience is required to use the program itself, as it has been written to enable even those with limited computer skills to get to grips with it quickly and easily. The ring-bound manual is good, with easy-to-follow tutorials.

SPEAKING IN TONGUES

Scala contains its own language, Lingua, though for most purposes you won't need to bother with either of these. The AGA chipset is also fully supported, and HAM pictures can be used, though these are best restricted to still images to avoid fringing problems when using text. The program comes on eight disks; most of these contain backgrounds, animations, symbols, demos, music modules, sound samples and fonts.

A *Scala* script consists of separate pages, which can be a plain colour, one of the many hi-res textured backgrounds supplied, created yourself in any Amiga paint program, scanned, (a flatbed scanner is recommended), or digitised. You can control the speed at which the pages appear, and choose whether viewer input is required to go onto the next one or its arrival is automatic after a set time. Onscreen buttons of any size can be defined, and a mouse-click on a button can be programmed to go to any other screen, making real interaction possible; for example giving the viewer the ability to view specific information by button selection. One of the supplied demos shows a simple quiz which illustrates the use of interactive buttons, but much more complicated scripts can be devised, which can involve, for instance, database searches and conditional loops.

Regular Amiga fonts, Colorfonts and Workbench 2 "bullet" fonts are all suitable for use in *Scala*, and Agfa Compugraphic fonts can also be used if converted to "bullet" format. Text can be justified or dragged with the mouse to the point on the page where you want it to come to rest, if you decide to have it fly into the screen. Outlines, shadows, and an impressive 3D effect can be added, with control over the depth and direction of shadows and the "extrusion" of the letters. Long lines of text can also be made to "crawl" across the field of view. If a screen contains more than one line of text you can import each line with a different wipe, and even change the colour of the text already onscreen in response to the arrival of the next line.

Animations, both drawn and digitised from video can be run, and as anims may be grabbed straight from hard disk without loading to memory first, this can enable large animations to be run very efficiently, though for this feature to operate properly a fast chip and fast hard drive are required.

Sampled sounds and SMUS and tracker modules can be included in your scripts, with control over looping, volume and fade in/out. If you own a sampler, this can be controlled from within Scala, with most of the popular samplers supported directly and a generic setting for those not supported. Sampled sounds can be edited and manipulated, and if you're running low on memory they can be compressed to about half size, though this may result in a loss in quality. There is also a MIDI player, which supports MIDI File Formats 0, 1 and 2.

If you decide to change the running order of the pages this can be done very easily by selecting the "shuffle" icon. This brings up a page showing a thumbnail of each page already defined, and lets you shuffle them into the order you want. Even after a page has been defined it remains fully editable so you can change any feature of it at any time, swapping fonts, colours and effects until you arrive at a pleasing result.

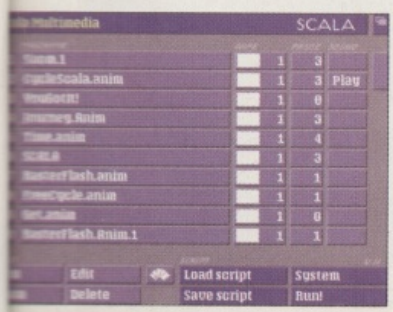
CDTV, Canon ION still video player, and Philips VP, Sony and Pioneer Laserdisc players are also supported.

CONCLUSION

Whether you're an ambitious specialist wanting to produce sophisticated professional multimedia presentations or you just want to produce something for your own entertainment, you will find *ScalaMM200* to be your most powerful resource.

Compatible: 2.04 Amiga and 1Mb Chip RAM, 2Mb Fast RAM and a

94%

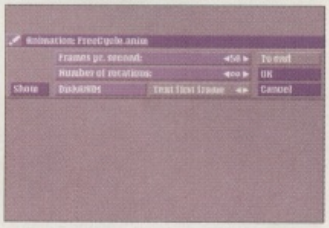


A sample script showing the way the program breaks down your presentation into separate pages, each with their own effects and wipes.

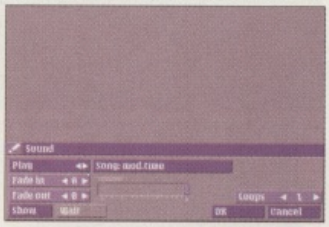
Very revealing

The real fun of using *Scala* starts when you begin to add wipes and fades to your scripts. More than twenty-five different ones are supplied, and they are added with a simple mouse-click; there is a preview option, so you can easily decide which one gives you the result you're looking for.

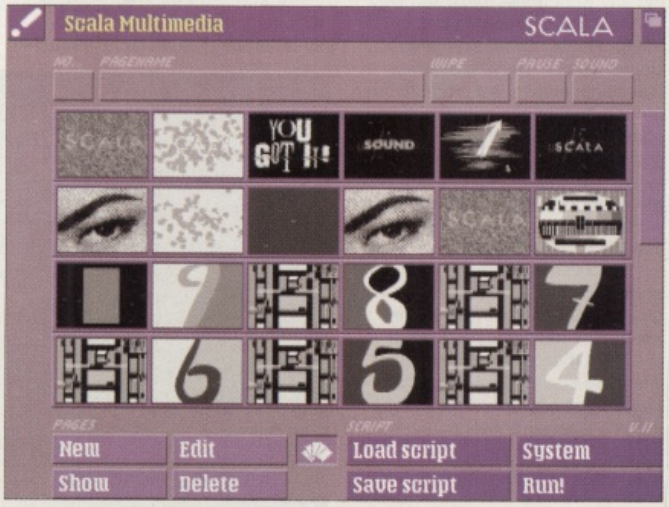
The effects range from simple fades to really eye-catching spiral reveals, flips and collapses - like you see on T.V. and videos. A different fade or wipe can be applied to any screen or line of text, and the speed of operation is fully controllable. Text can fade in, start off-screen and fly in from the top, bottom, sides or corners and come to rest at any position on the page, or appear gradually, using your choice of reveal. It can then disappear after a set time, using the same range of effects. If you want to include long lines of text, these can be made to "crawl" across the page. These events can be synchronised to sound, with an internal accuracy of milliseconds.



The animation control panel from where you can specify the number of times an anim is to be replayed as well as its replay rate. If you don't have a lot of memory, you can even animate directly from disk.



The program supports sound both in the form of modules and samples and even MIDI files.



You can preview all of the graphics used in your script and they can easily be rearranged with a few clicks of the mouse.

»

FRACTAL LANDSCAPE GENERATORS

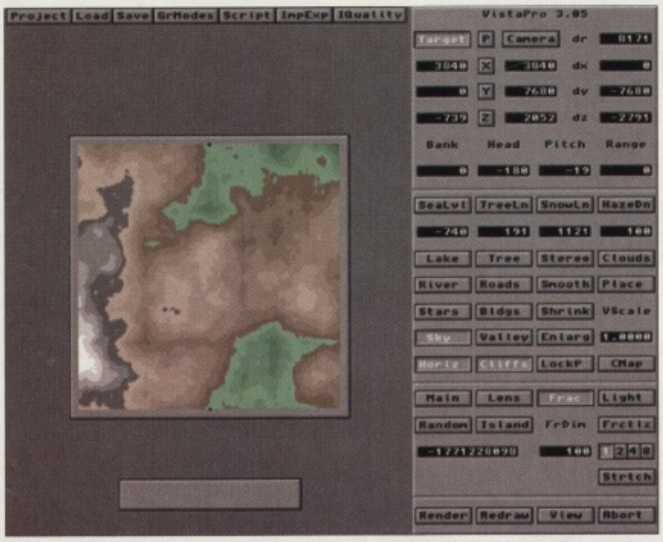
Over the past few years, fractal landscape programs have become very popular. They can produce attractive photo-realistic scenes for little or no effort, and such scenes have been used in a number of games and demos, to mention nothing of television.

There is a great variety of such programs available, and although they may have some unique features, they also have a lot in common with each other.

Travel back in time a couple of years and fractal generated images were all the vogue, appearing on t-shirts, posters, everywhere. But fractal imagery doesn't just mean pretty Spirograph pictures – they're capable of a lot more...

VISTA PRO 3.0

£69.95 - MERIDIAN DISTRIBUTION - 081 543 3500



Vista has a friendly and easy to understand interface, which is just as well because it has options galore!

Science fiction guru Arthur C Clarke says of this program 'It's so good that if it gets into your computer, you'll never get any work done.' Let's see why.

Vista Pro is brought to us by Virtual Reality Laboratories in the United States. They have constantly developed the program over the last four or five years, and have spent hundreds of thousands of dollars converting geological maps to run with the program. Thanks to their efforts, you can now travel the world and beyond without ever leaving your armchair.

The basic idea behind the program is that you load a two dimensional contour map of the area to be recreated, and the program will then calculate exactly what you would see if you were standing at a particular point looking in a specific direction.

MAPPING THE GLOBE

The maps it uses are known as Digital Elevation Maps or DEMs for short, and 27 of them are supplied with the program. These mostly cover areas of geological interest in America but there are a few European location included as well as one from Mars.

Having decided which area you wish to model, simply load the required DEM and you're ready to go. Before you tell the program to render, there are a huge number of optional preferences that you can set to tailor the landscape to your exact requirements. For starters you can specify whether it is night or day, cloudy or clear and what colours the landscape should be. You can also add a variety of tree types, to mention nothing of rivers and lakes. In short, you can create the landscape of your imagination.

Once you're satisfied with the landscape, click Render and *Vista* will automatically draw the landscape of your choice, allowing for the lighting conditions, which are also completely user-definable. In fact, by creating a script, you could even create an animated series in which the observer's viewpoint changes and the light also changes to represent the passage of the sun.

The image is rendered in 24-bit colour making it ideal for professional use. However, you can always save a picture in a mode appropriate to your requirements. Unfortunately, its 24-bit rendering mode, to say nothing of the vast range of user-definable options, does mean that the program is extremely RAM hungry and in fact requires a minimum of four megs of memory, or six if you're going to be using the AGA modes. This puts it well beyond the reach of the ordinary person which is a shame considering how much fun it is to use.

If you want to go on a total flight of fantasy, you can use *Vista*'s fractal generator to create completely fictitious worlds. By specifying a seed value, the program will create a landscape that exists only in your computer's memory. You can specify the type of DEM that will be created, an island or mainland, and you can also indicate a vertical scaling factor in case you want to make something really wacky.

Vista's fractal generator was used to create this ficticious landscape. Amazing, eh?!

SLOWLY AS SHE GOES

Even on accelerated Amigas, rendering a landscape can be quite time consuming, and on an unac-

Have you considered...?

TERRAFORM

£N/A - MERIDIAN DISTRIBUTION - 081 543 3500

Sooner or later you're going to tire of the digital elevation maps supplied with *Vista*. When that happens you can either buy more, or you can use *Terraform* to make your own.

Although *Vista* maps may seem incredibly complicated, in actual fact they're little more than a series of numbers representing various heights. These numbers are converted into different screen colours representing various altitude ranges.

Terraform allows you to modify existing landscapes or create your own from scratch. It provides you with a few basic building tools with which you can build mountains or craters, roughen or smooth the terrain and generally shape the land to your every whim. You can even add buildings and one of the demos actually contains the Hoover Dam.

CONCLUSION

Terraform is simple to use, primarily due to its basic but adequate selection of tools. It does what it should, but it's far from glamorous. End of story.

Compatible: Any Amiga. 70%

A 3D *Vista* image is the only way that you can explore an intact Mount St Helens volcano. It erupted spectacularly several years ago and now the entire cap is missing.

celerated machine a high res landscape could easily tie your computer up for half a day or more. You can choose exactly how high a level of realism the program should produce, and low levels naturally take far less time to create. Ultimately though, you're going to want to render a scene with all the extras switched on. This means that scenes will consist of thousands of minute polygons, each of which is blended and shaded. Any plants you may include can also be created with varying levels of realism, ranging from two dimensional stick plants to multi-layered three dimensional pines, cacti, oaks and palms.

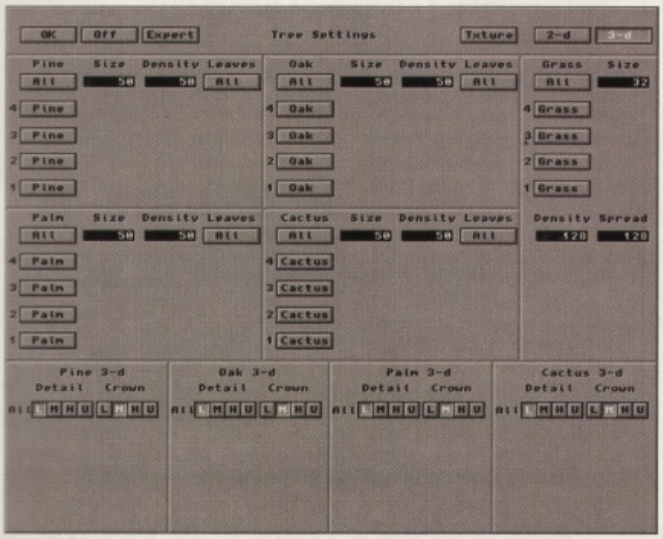
If you're producing landscapes for television of video work, *Vista*'s animation abilities are particularly useful. The program will accept a script which describes a path through your three dimensional landscape. You can control every aspect of the path ranging from pitch and yaw, to movement speed and lens type. A recent Tomorrow's World program used this feature with the Martian landscape to demonstrate how the planet could be vegetated. This feature is extremely powerful but is also very tricky to get to grips with unless you have both a great deal of patience and a high degree of spatial awareness.

CONCLUSION

Overall, I found *Vista Pro* to be a very powerful and entertaining tool to use. The cloud feature is still a bit hit and miss, and good as the trees are, they could still be improved. Overall, the program is a joy to use, and is almost worth upgrading your Amiga for.

Any Amiga with Workbench 2.04 And 4Mb RAM (6Mb If using AGA screen modes).

89%



The program has some pretty complicated tree generation algorithms. Want to see what Mount Fuji would look like covered in palms? Well, now you can!

Have you considered?...

MAKEPATH

One of *Vista*'s greatest strengths is its ability to create superb animated voyages through your landscapes. Unfortunately it can be an immensely time-consuming and complicated business to create your own animation - unless you've got *MakePath* of course!

Thanks to this ingenious program, all you need to do is load the appropriate Digital Elevation Map into the program, and trace a path using the mouse. Each time you press the

There are three simple stages to creating a path. 1. Load a DEM and draw a rough path on it. 2. Select the vehicle type. 3. The program will now calculate an actual motion path based on the abilities and movement properties of the vehicle you chose. In this animation we're travelling by missile. High altitude, wide turning circle.]

button, a control point will be placed and a line will be drawn between it and the previous point. These represent your path around the landscape.

If you want to exercise total control over the way your animation comes out, you can specify every single parameter about the way the viewpoint changes as you move around the landscape. If you prefer to let the computer do the legwork for you, you can choose from a predefined list of movement types which indicate the way that the path and viewpoint will change. This list includes motorbikes, gliders, missiles and even dune buggies and the choice you make affects things such as the way the viewpoint banks as you turn a corner or how close to the ground you are.

You can also specify the speed of each part of your path as well as the total number of frames it should occur over. There is a reasonably fast wire-frame preview mode which you can use to test your path before you save it.

Once a path has been saved, you can then load it into *Vista Pro* to use as the instruction file for its animation generation.

CONCLUSION

Makepath really is a very clever program, and as labour saving tool I think that it is unmatched. Again, the results on their own are not spectacular but when combined with *Vista Pro* they can be breath-taking.

An absolutely essential accessory for *Vista* users.

Compatible: Any Amiga. 91%

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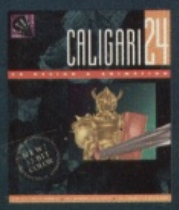

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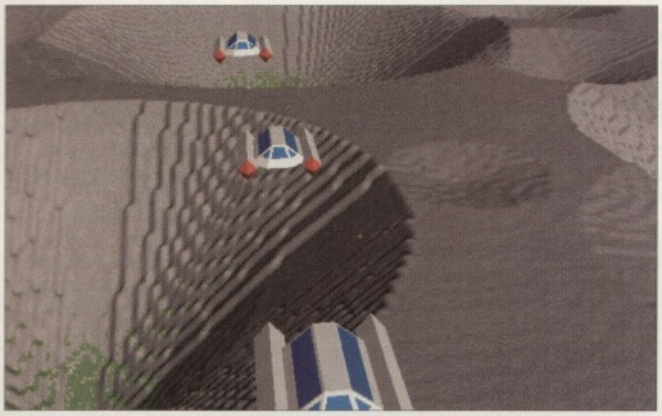
SCENERY ANIMATOR 4

£67.99 - FIRST COMPUTER CENTRE - 0532 319444



You can actually animate 3D objects as part of a *Scenery Animator* animation. Just specify the start point of an object and its destination and the program will work out the rest for you.

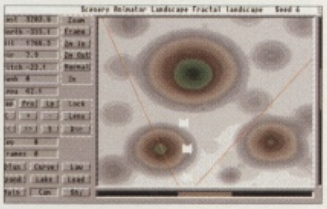
*Vista*s arch rival has struggled over the years to catch the public's eye, but has never quite managed it. Now at last it includes some features that finally lift it out of the ordinary.

Like *Vista*, *Scenery Animator* is a fractal landscape generator and animator. It is capable of loading digital elevation maps or creating fractal landscapes from seed values. It can't process *D-Paint* map graphics like *Vista* can, so you won't be using the program to model your home town unless a DEM is already available.

ACE IN THE HOLE

Despite the fact that at just about every level the program is slightly inferior to *Vista Pro 3.0*, it has one massive ace up its sleeve, and for many people it's such a significant bonus, that all its short-comings will seem insignificant. So what is this special feature I hear you ask breathlessly? The ability to load 3D objects of course, what did you expect?!

This ability is well supported both by the way the program displays landscapes, and the way it animates them. For starters, once you've loaded a landscape, you can see it in the plan view in the same way as *Vista*, but, and this is a very nice feature indeed, you can also see it in three dimensions. Of course the 3D view doesn't show you the same detail or even correct lighting such as will appear in the finished scene, but it does give you a damned good idea how the eventual scene will look. It's also very handy when you come to position objects in your scene. *Vista* does offer a 3D preview mode, but only as a hard-to-see wire-frame.



The standard overhead view is supported as well. And you can use this to position the viewer to an accuracy of a metre or less.

Anyway, as with *Vista*, you can specify your position and lighting, etc prior to rendering a scene. This is far easier to do in *Scenery Animator* because every change is immediately displayed in 3D. However, it would be wrong of me not to mention the fact that the program is far less sophisticated in the range of options it offers, and in my opinion, the landscapes don't look quite as realistic as the rival package. The main reason for this is that the margin (where one type of land starts and another ends, say at the tree-line for instance) is very dubious in the way that it's represented.

Having said that, the way that trees and clouds are drawn is far more convincing and you can even get into the branches of a tree if that takes your fancy!

NIPPY RENDERING

The program's rendering time is extremely impressive, and inexplicably, it is many times faster in 24-bit mode, than in the less colourful screen modes. I can only assume that it's because the program doesn't actually draw 24-bit images, it renders them straight to disk. Mind you, I rendered a HAM image then a 24-bit version of the same scene and I'm darned if I could see any difference between the two...

It's when animating that the program really shines brightest, because it uses such a user-friendly system for specifying what goes where. Rather than making you specify every single part of every frame, you only have to define key frames. The program will then calculate the movement between them, including any objects that may be present.

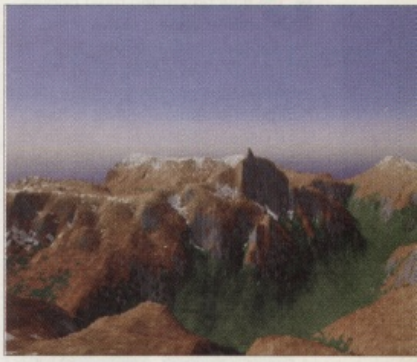
CONCLUSION

OK, so *Scenery Animator* falls a long way short of the technical perfection of *Vista*, but it scores highly on the user-friendly scale. Whereas animation is a laborious task in *Vista*, it's almost a pleasure with *Scenery Animator*. Much as I love *Vista*, this program really puts the fun into landscape generation.

If mathematical perfection and absolute photorealism is your goal, then look elsewhere. If you want to spend many enjoyable hours creating landscapes and moving objects through them, then this is the one for you. Very accomplished and nicely designed.

Any Amiga with Kickstart 2.0 or above and 3Mb RAM.

89%



GENESIS

£49.99 - SOFTWARE BUSINESS - 0480 496497

Trying to cash in on the fractal craze, Microillusions' *Genesis* is not quite in the same league as other such programs. At least it's cheap and cheerful though!

As with the other commercial programs reviewed here, *Genesis* is capable of using DEMs or creating landscapes from its own fractal seed. Although it has many of the features contained in *Scenery Animator* for example, it just doesn't seem to score particularly highly in terms of user-friendliness. Ultimately, I suppose it's the results that count, and *Genesis* does draw more convincing images than *Scenery Animator*, although it still lags behind *Vista*.

I think that the main grumble I have with this program, apart from its chronically slow rendering speeds, is the way that everything is tucked away out of sight. I'm not sure if this is a particularly fair criticism to make, but after having used the other two, *Genesis* seems like quite a hostile environment.

Check out your viewpoint before you commit to a full render with the speedy wireframe preview mode.

It's not all negative though. For starters you can run the program in only one megabyte of RAM. Compare this to the four needed for *Vista* and the three that *Scenery Animator* requires and the advantage starts to become clear.

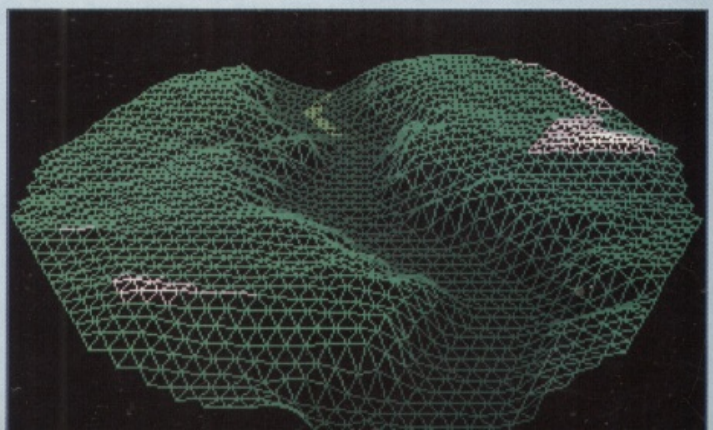
The program also includes an easy way to alter the colour of parts of a landscape after it's been rendered. *Genesis* is also the only program to provide a very quick colour preview mode.

CONCLUSION

Genesis is not as accomplished as either of the two previous programs, but you can use it on a standard A500 with 1Mb of memory. However, the program is agonizingly slow to render, even on an accelerated Amiga with maths co-pro. With care though, you can produce results which are barely distinguishable from its rivals.

Any Amiga with 1Mb RAM and AmigaDOS 1.3 or higher.

76%



3D AND RAY TRACING PROGRAMS

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Thanks to the Amiga's superb graphical abilities, it has gained a following of people who use it for serious video and TV work. For such people few programs are as important as a 3D renderer with which they can create stunningly realistic objects and animations without the costly expense of building models. Although there are a number of packages available only a very few of them can be said to contend on equal terms.

These can basically be divided into two sections: ray tracers and CAD packages. Ray tracing is the process of tracing every single ray of light within a scene to calculate exactly how each pixel in that scene should look. In the early days of ray tracing the ability to model a variety of surface textures and light refracting/reflecting properties was considered something special, but nowadays we've gone far beyond that with the ability to wrap IFF images around three dimensional objects to say nothing of texture and bump mapping and even particle based animation systems that until a few years ago were the exclusive domain of research labs and computer departments in big universities.

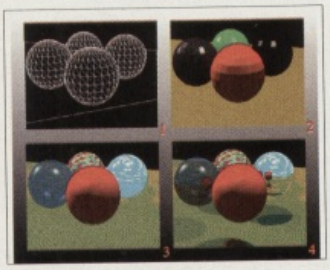
The second section is far less glamorous because the end result is quite dull to look at unless it's processed by a ray tracing package. CAD or Computer Aided Design essentially consists of using a computer to design 3D objects, although you could also use it to work in two dimensions.

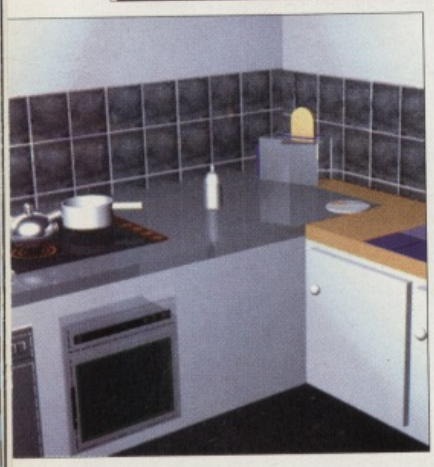
IMAGINE 2

£149.99 - Hobbyte - 0727 856005

Developed from the old *Turbo Silver* ray tracer, *Imagine* is now one of the most popular home tracers in the world. Available on both the Amiga and the PC, artwork developed using this package was prominent at the recent computer graphics festival in Italy.

It uses a traditional approach to object modelling whereby all objects are created as a series of linked points which form facets. Each facet can be given different properties including colour and texture. It`s also possible to wrap IFF pictures around an object. Alternatively IFF images can be used as 'maps' to calculate the texture of an object.





Having created your objects, they need to be arranged within the 3D scene. If they are to be animated, you can use the action editor to define the paths that various objects will take. As hierarchical movement is supported, you can define one object's movement relative to another, so that both parts are always moved as a related pair. For example, a finger has a complete range of movement, but that movement cannot be independent of the hand. Wherever the hand goes, so does the finger.

Having finally defined your animation, you only need render it in the Project editor and you're done. By using entirely separate editors at every stage of the production process, the working area is kept clear of unnecessary options, which is just as well because this is a complicated enough business already!

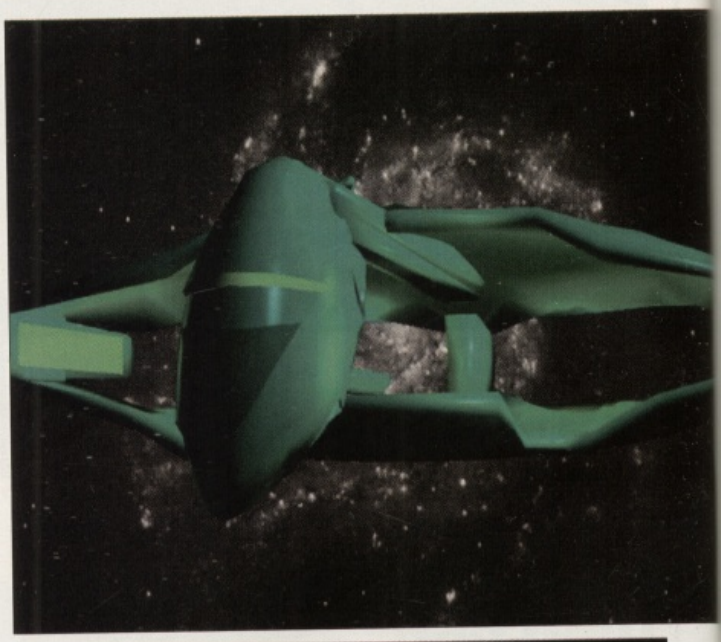
The learning process is definitely not helped by the fact that the manual is pretty dire. Fortunately some kind soul has already thought to write a help book called 'Understanding *Imagine 2*'. It seems a bit of cheek to have to buy a help book the second you buy a new piece of software, but if you want to use what is arguably the most powerful piece of 3D animation software available for the Amiga, then that's the price you have to pay.

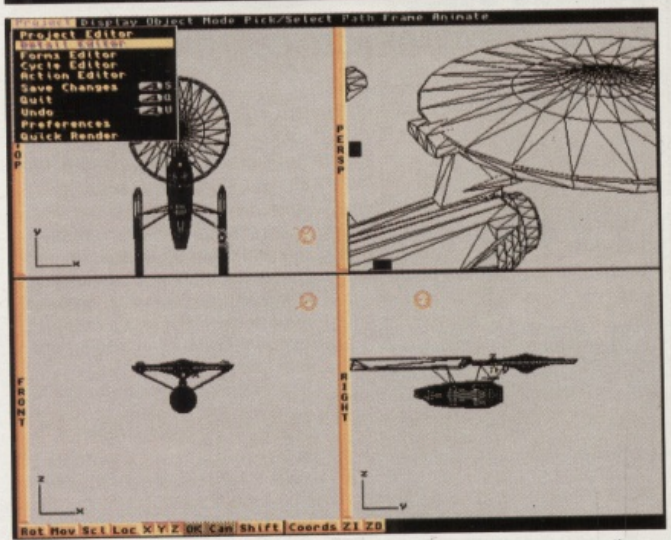
CONCLUSION

A good solid program that is especially capable in the animation department. A well designed user-interface makes it one of the easier packages to use, and although object creation is not quite as elegant as *Real 3D 2*'s, the end results are just as good.

Any Amiga with 3Mb RAM and a 40Mb Hard Drive.

89%





The program represents objects using a conventional Tri-view, although as you can see, the addition of a perspective viewpoint turns this into more of a quad-view.

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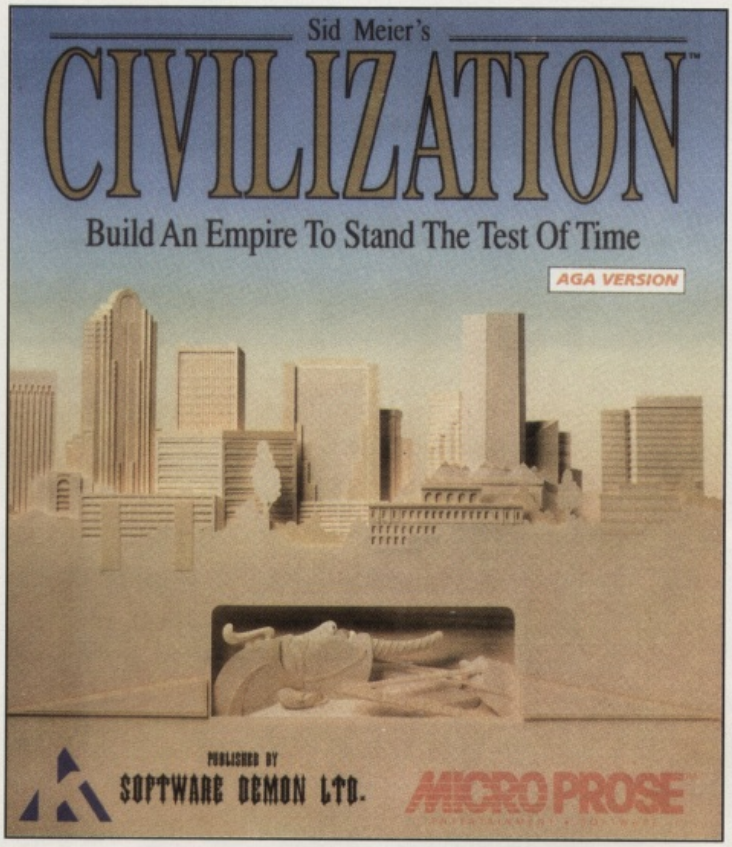

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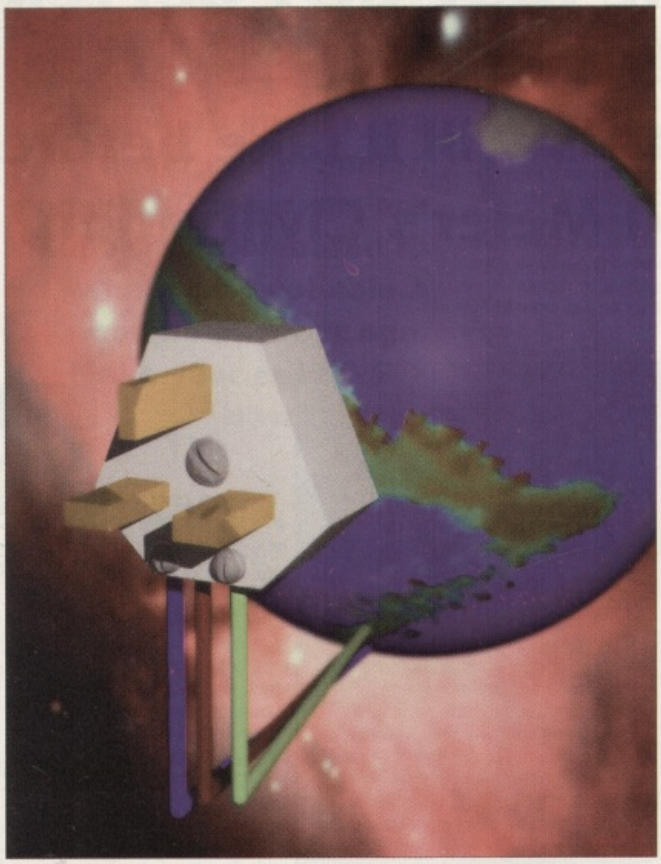
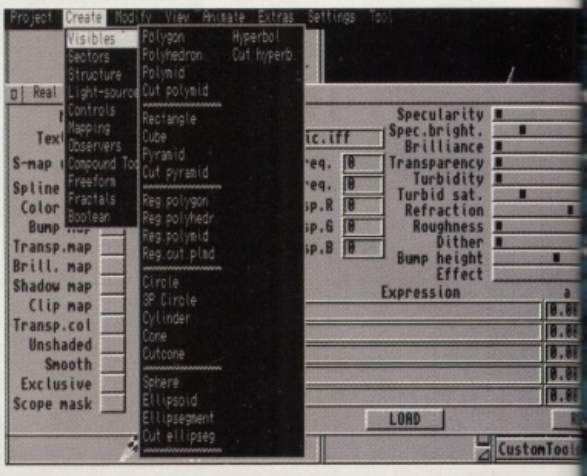


REAL 3D 2

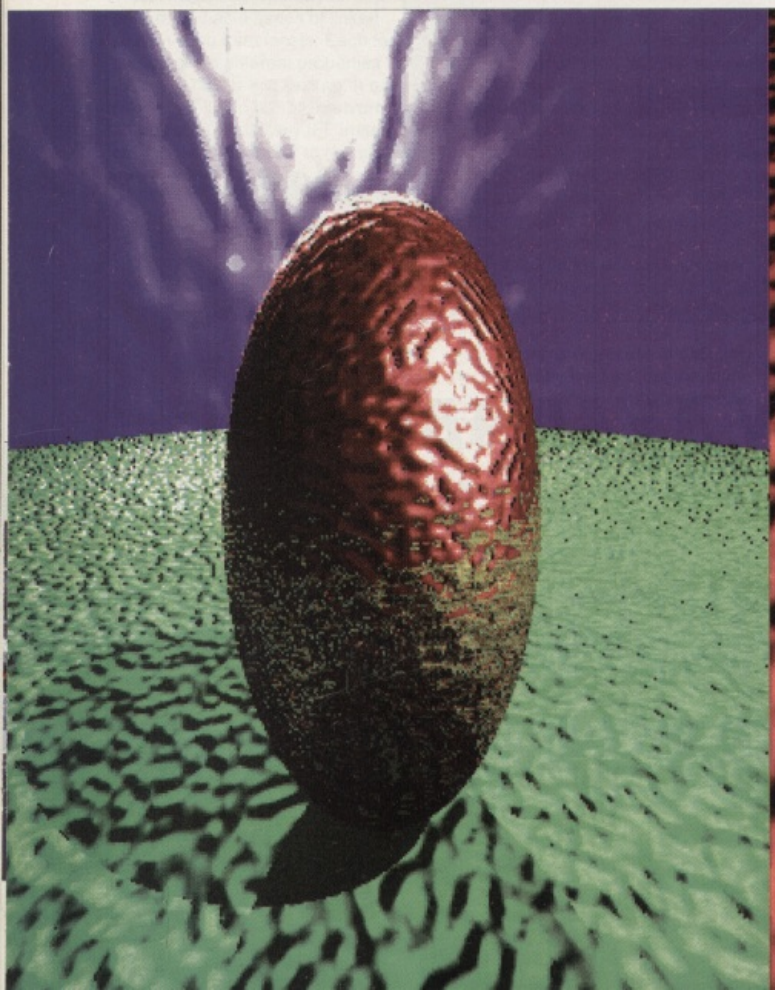
£394.90 - HOBBYTE COMPUTING - 0582 457195

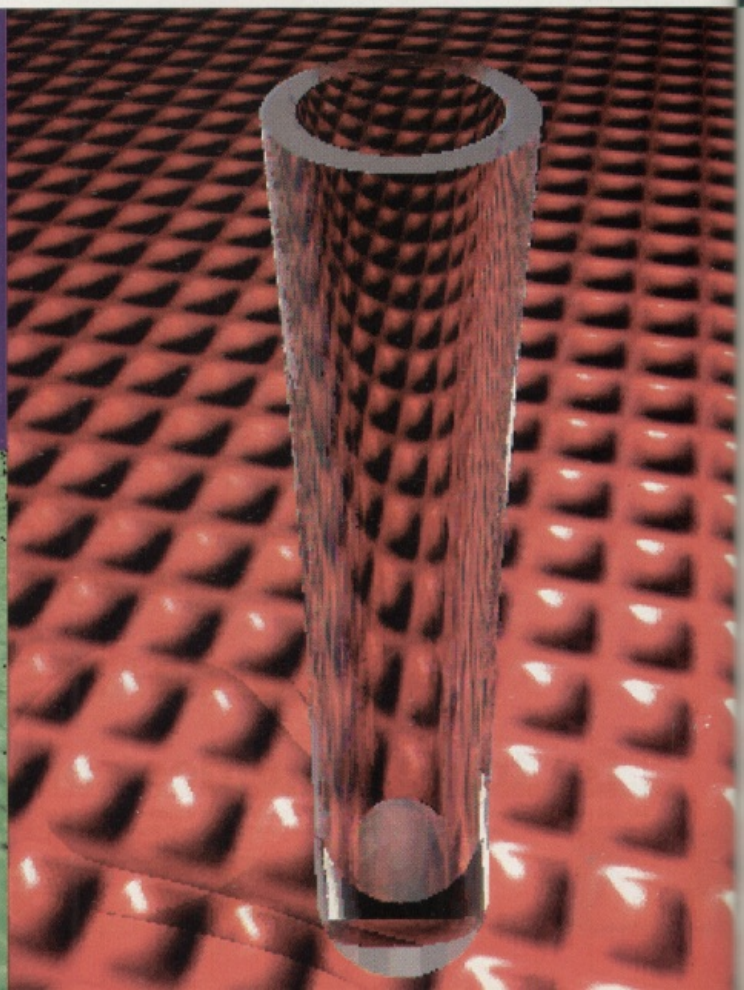
Whereas *Imagine 2* takes a very clinical and traditional approach to the whole business of ray tracing, *Real 3D* takes a much more theoretical, object based approach. For instance, whereas in *Imagine* you'd define a sphere as a number of linked facets which form a mesh of a particular shape, *Real 3D* would say 'Here's a sphere in position X and size Y'. When it comes to rendering, this conceptual approach can produce better results although at a cost in terms of rendering speeds.

The theoretical approach to object modelling extends far beyond the literal creation of 3D shapes, it encompasses the entire *Real 3D* world and makes possible effects that would require mind numbing computations to perform with other packages.



You can choose from a large selection of basic shapes (called primitives), or you can simply create your own objects entirely from scratch.





A REVOLUTION

With most Amiga 3D software objects are no more than a series of mathematical references which describe an object's shape, size, texture and location. If the package is clever like *Imagine 2*, it can even describe an object's mechanical relationships to other things in the world. However, in the world of *Real 3D* objects also have mass and velocity. They inhabit a world that has gravity and they will react to each other if they collide. A ball will roll down a hill, or bounce off the floor if dropped. This real world approach means that you don't have to worry about the mathematics of dynamics, all you need to know is the physical properties of the objects you are defining.

Real 3D is revolutionary for another reason too; it lets you define exactly the way that you want to work with the program, and what viewpoints you feel are necessary in order to manipulate your objects.

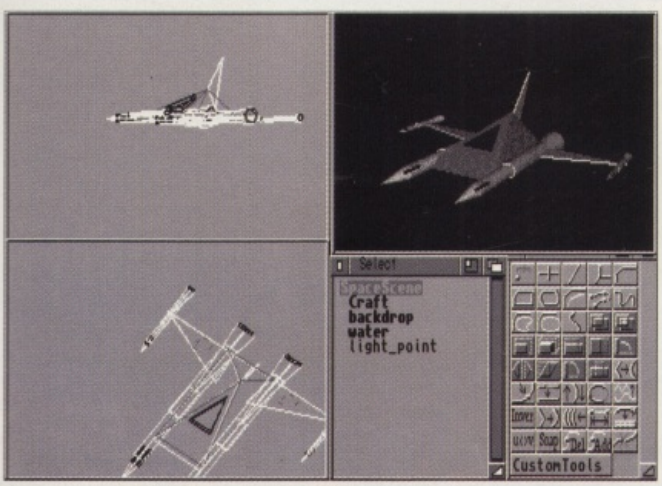
The program even comes with its own programming language which permits you to create animation scripts of such complexity and accuracy that they would be impossible under any other method. For example, the language lets you activate various particle animation systems which are used to model the apparently random motion of leaves in the wind or rain drops.

CONCLUSION

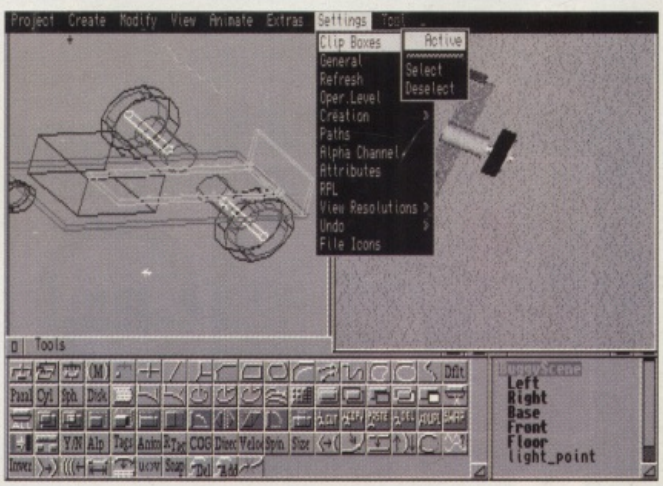
Five years ago the top film labs were drooling over effects such as these, and now you can create them in your own home. Not cheap by an means, but compared to a Silicon Graphics machine, or a Sun Work Station an absolute snip!

Compatible: Any Amiga with an '020 or higher and a 68881/2 maths co-pro and 3Mb RAM.

93%



You can set up exactly which views you need to use whilst you work.



There are an almost bewildering number of construction tools available. Once you've learnt what they all do, you'll be able to create objects much faster.

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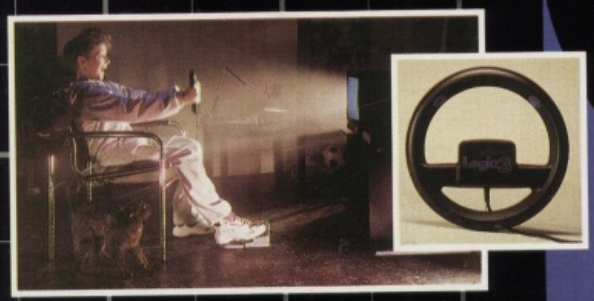

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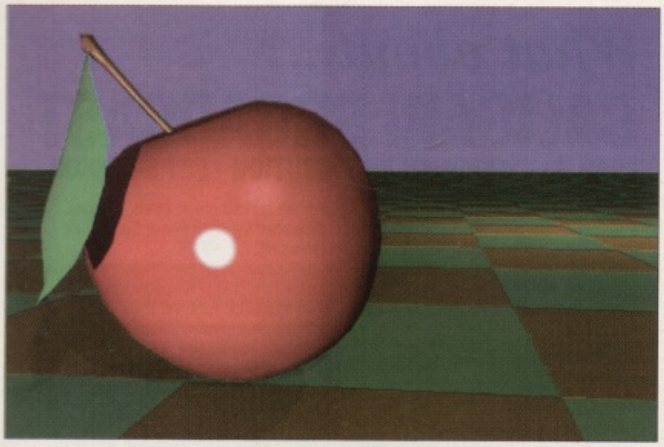


It's a bit long in the tooth now, but *Sculpt 4D* can still produce decent results, and at this price you can afford to take a chance!]

SCULPT 4D

£39.99 - MICROPACE - 0753 551888

The original Juggler demo was created using a package called *The Ray Tracer*. Several years of development down the line and *Sculpt-Animate 4D* was born.

This was once considered to be the ultimate in state of the art ray-tracing software and cost almost as much as *Real 3D* does today. Now, its rather creaky tri-view interface and limited features mean that it's hardly even considered in round-ups of this sort. But hang on a second, you can now buy what is still a very capable package for well under fifty pounds, and that makes it well worth considering!

It doesn't have any of the flashy texture or bump mapping options that Imagine offers, and it certainly can't compete with the particle systems in *Real 3D*, but what it does offer is a good, solid, reliable ray tracing and animation package that can output at any resolution and screen size in up to 24-bit colour.

It uses a similar point and facet based approach to object creation as that used by *Imagine*, and again each facet can be assigned a surface property, ranging from matt, to nearly transparent. To the best of my knowledge this was the first package to offer true hierarchical motion, and it's capable of producing some stunning images, although you'll need patience in abundance, if not for the creation of objects which is taxing enough, then for the hours you'll spend twiddling your thumbs whilst the program renders your image.

CONCLUSION

Competent and cheap, but not very friendly to use. A good one for beginners on a budget though.

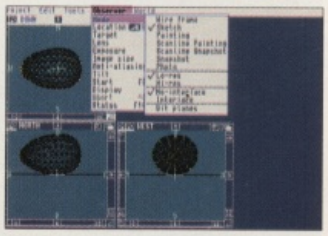
Compatible: Any Amiga with 1Mb RAM.

74%

Famous last words

Talk about putting your foot in your mouth; I offer you this unfeasibly optimistic quote taken from the *Sculpt-Animate* manual: 'Ten years hence, when rendering is done in real time, disk storage is tabulated in gigabytes, and the average RAM count is the size of a Buick, *Sculpt-Animate* will still be around lighting the way.'

Well, rendering is now done in real time on the Video Toaster with the Toaster Screamer, hard drives of 1.2 Gigs and above are commonplace for those that can afford them and it's possible to upgrade even a lowly A500 to 128 megs of RAM. So what's missing from the picture? What's that dimly sputtering candle I see off behind me in the distance? Oh, it's *Sculpt-Animate*. For some reason Byte by Byte decided it wasn't worth developing for the Amiga any more, and have now turned their attention exclusively to the Apple Macintosh (although what they hoped to find there that the Amiga couldn't offer I don't know...).

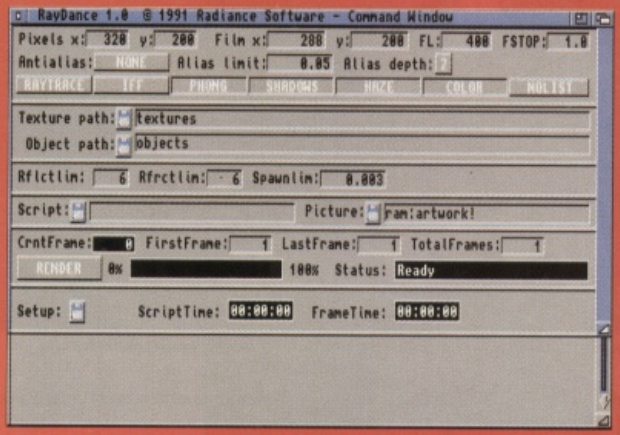


Although the program uses the standard tri-view, you can preview any screen in a variety of resolutions prior to rendering.

What about...?

RAYDANCE

$99.95 - RADIANCE SOFTWARE - 0101 408 270 7420


RayDance 1.0 © 1991 Radiance Software - Command Window
Pixels x: 320 y: 200 Film x: 200 y: 200 FL: 400 FSTOP: 1.0
Antialias: NONE Alias limit: 0.05 Alias depth:
RAYTRACE IFF PHONG SHADOWS HAZE COLOR NOLIST
Texture path: textures
Object path: objects
Rflctlim: 6 Rfrctlim: 6 Spawnlim: 0.003
Script: Picture: ram:artwork!
CrntFrame: 0 FirstFrame: 1 LastFrame: 1 TotalFrames: 1
RENDER 0% 100% Status: Ready
Setup: ScriptTime: 00:00:00 FrameTime: 00:00:00

Unlike the other programs reviewed here, *Raydance* is entirely script-based so the only time you see a graphic is when you render a picture.

The pogram includes an incredible plant growth formula which you can use to create trees at all stages of growth.

Raydance is a little known ray tracer from Radiance Software in San Jose, California. It is totally script driven, and the only time you'll see anything even approximating a user-friendly front end is when you load the rendering module.

The program works by processing listings defining the exact mathematical nature of everything in a scene. This is an extremely maths intensive approach for the user, but it does mean that it's easier to create complex geometric forms such as arcs and curves, with ultra-precision. Charles Comstock, the program's author suggests that the program is ideally suited to architects and other such designers, or to educational establishments.

Whilst this may be true, the program is no slouch when it comes down to its features list. It supports the now almost obligatory texture and bump mapping, but more interestingly, it also supports the generation of three dimensional fractal landscapes, which sure beats checker boards as a background! *Ray Dance* also has a fascinating plant algorithm which can literally be used to 'grow' three dimensional trees and bushes into a scene, although don't expect such scenes to render in ten seconds.

The accompanying manual is designed purely as a reference source and contains no tutorials unfortunately. This means that what is already an exceptionally complex program, is even harder to learn than perhaps it needs to be.

CONCLUSION

If results are what counts, then *Ray Dance* deserves to be up there with the big boys. If user-friendliness is the primary goal then it rates somewhere down below the sub-sewers. If you have a masters degree in applied physics, and a Bachelor of Arts in difficult maths you'll probably enjoy this program. The rest of us are probably going to be happier with a more graphical approach.

Compatible: Any Amiga with 1Mb RAM and 2 floppy drives. 85%

CALIGARI 24

£99.95 - MERIDIAN DISTRIBUTION - 081 543 3500

The program's incredibly easy to use interface is one of *Caligari*'s most positive features.

One of the major problems with ray tracing, is the huge amount of time it takes to actually render each picture. *Caligari* overcomes this problem by adopting an entirely different approach.

Ray tracing literally involves tracing every single ray of light in a scene, to see how it colours every single pixel. With simple non-reflective scenes this can be bad enough, but once you start adding more complex objects with reflective or near-translucent surface properties, the amount of calculations involved can be immense as light rays are reflected, deflected and refracted all over the place.

Caligari describes itself as three dimensional imaging software rather than a ray tracer. The reason for this is that it uses a system known as Scanline rendering instead of the more popular and time consuming ray tracing

Scanline rendering looks at shape, colour and relative depth of each object in a scene, but it doesn't calculate reflections of any sort. That means that a scanlined sphere will still be visibly spherical because the program has taken into account light sources and the depth of different parts of the sphere. *Caligari* images are ideal for circumstances where speed is more important than absolute photo-realism.

Of all the 3D packages, *Caligari* has the friendliest user-interface, dispensing with the conventional tri-view of *Imagine* and *Sculpt*, and offering instead a full-screen isometric perspective which makes visualisation of the finished scene much easier. To make things even better, this view can be twisted and turned with the click of a mouse, so that you can quickly examine every perspective of a scene.

The unfortunate cost for such flexibility is the loss of the multi-tasking environment because the program closes all other applications including the Workbench in order to gain the necessary speed needed to maintain its own display. Whilst this is inconvenient, you soon get used to it and in my opinion the flexibility of this system compensates for the loss.

Caligari 24 also has a very exciting design feature called organic deformations. What this techie-sounding phrase actually means is that you can stretch an object as if it were made of rubber. When you enter 'deform mode' the object to be distorted is surrounded by a box. Grab any point of the box and drag or twist it, and the object reacts accordingly, creating natural looking transformations.

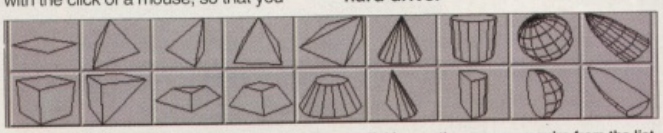
The one thing the program doesn't have, and it's a strange omission considering its title, is a direct way to save a 24-bit image. This is strange considering the fact that it actually renders in 32-bits (it has an 8-bit Alpha channel for effects).

CONCLUSION

Caligari is very good for quickly creating and rendering a scene, but the eventual output is not up to the standards of a ray tracer. Having said that, they're not THAT far short either. It is by far the easiest program to use, and that in itself might make you want to give it serious consideration.

Compatible: An '020 orm higher Amiga with a 68881/2 maths co-pro and a hard drive.

86%

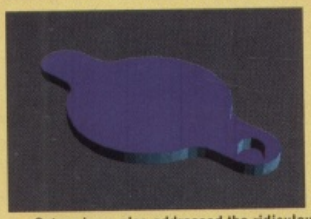


You can include a shape in your 3D world by simply clicking on the one you require from the list of primitives shown here.

What about...?

CALIGARI BROADCAST

£399.95 - MERIDIAN DISTRIBUTION - 081 543 3500



For the real 3D power users, *Caligari Broadcast* takes up where *Caligari 24* leaves off.

The two programs share a very similar user interface, so upgraders won't have to go back to basics. However it also includes a whole bunch of extra animation features including motion blur, acceleration and deceleration and the option to animate a deformation.

Octree have also addressed the ridiculous omission in the earlier product by giving *Caligari Broadcast* the ability to save 24-bit files without the palaver of rendering to a null buffer then converting via an image processor.

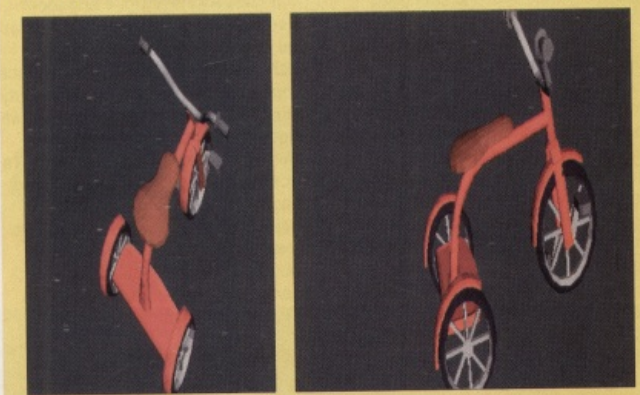
The program also provides improved scene display on AGA machines as well as increasing the sophistication of its alien file import and export options.

CONCLUSION

Caligari Broadcast is an exceptionally powerful product and its high price tag reflects that fact. Thanks to the way it renders, it can draw pictures up to 40 times faster than conventional ray tracers. In America it originally retailed for $1995.00 and even at that price it won awards left, right and centre. AV Video magazine said that it 'had the best user interface of any 3D package priced under $50,000' and it's impossible to deny the flexibility or friendliness of its front end. The program contains numerous unique features, and bears serious consideration if you're looking at professional 3D work.

Compatible: An 020 or higher Amiga with a 68881/2 maths co-pro and a Hard Drive and 4Mb RAM.

90%



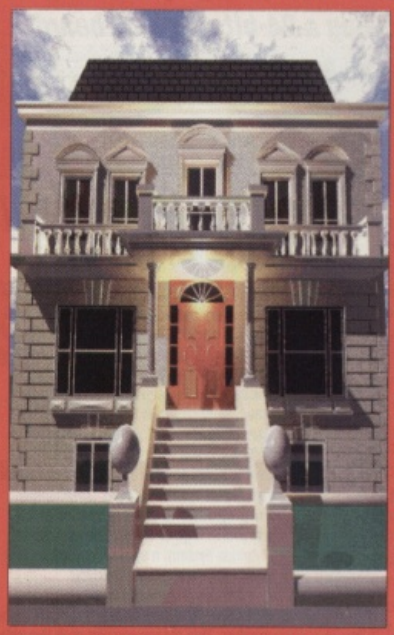
It's extremely easy to change an object's orienttion, and equally easy to move the viewer's perspective.

This is one of the demos included on the disk. It only takes 15 seconds to render in this mode.

What about...?

XCAD 3000

£386.58 - Digital Multimedia - 081 977 1105



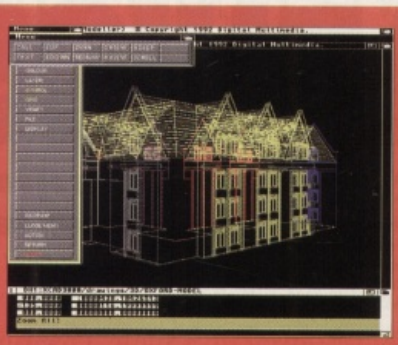
XCAD can convert your 3D drawings into Turbo Silver object files for rendering via a ray tracing package.

Drafting has been dragged into the 20th century thanks to Computer Aided Design programs such as *AutoCAD* on the PC, but the Amiga's own *XCAD 3000* just blows away anything the PC has to offer.

XCAD is a 3D drafting package. It consists of a 2D module where you actually draw the components of your image, and a 3D module where the components are linked to form a true 3D object. Of course, if you don't require 3D, the program is still superb in only two dimensions.

Although it is capable of outputting files in the format of most popular ray tracing programs, *XCAD* is different in the way that it constructs images and objects.

It is rather like a structured drawing tool, where each object consists of control points and lines. These images are placed on the page using a rather cumbersome command system where a number of characters are typed to specify the type of command followed by more characters to indicate its parameters. This system is extremely ungainly, especially considering the Amiga's wonderful WIMP environment. If you have a graphics tablet, you can execute many control functions using that instead.



Although the end result are as good as those produced by the most expensive business system, *XCAD*'s user interface leaves a lot to be desired.

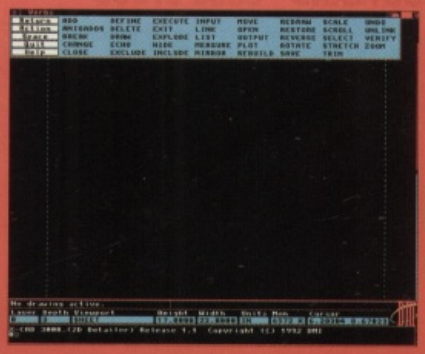
Drawings may be built up from a series of layers which can be edited independently of each other. The program supports a totally excessive 100 million layers, although I don't suppose you're likely to ever need many more than 98 million of those!

XCAD 3000 can also import and export industry standard DXF files, so you can convert your work to run on those lesser PC packages if you so desire.

CONCLUSION

XCAD 3000 is quite simply the best 3D drafting package that money can buy for a home or mini computer. Of course you could go out and spend tens of thousands on a completely dedicated system, but considering the fact that on an accelerated Amiga *XCAD* runs faster than *AutoCAD* on a 486PC, why would you want to? If you need to exchange drawings with the rest of the world, this is your best option.

Compatible: Any Amigawith 2Mb RAM. 95%



The program consists of a 2D and 3D drawing editor. This one is for 2D drawings.

Have you considered...?

PIXEL 3D PROFESSIONAL

£199.95 - MERIDIAN DISTRIBUTION - 081 543 3500

It's all very well using ray tracing and 3D programs to render all these dramatic objects, trouble is you've got to create the damned things first. *Pixel 3D* lets you cheat.

In fact *Pixel 3D Professional* performs two very useful jobs: it converts 3D objects from one object format to another (*Imagine* to *Sculpt* for example). It also lets you create 3D object files from 2D bit-maps and fonts.

The program is very easy to use, just select load and once you've given a file name the program will automatically detect what format the file is in. If you're usipg the program for format conversion, select save and you'll be offered a choice of fourteen different output file types. Having selected one, the program takes care of everything else for you.

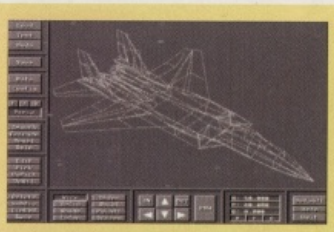
If you choose to load a bit-map, the program will immediately convert it into its own 3D object format. Initially, the object is flat, but using the extrude option you can quickly add depth to it. You can even round off the edges with the bevel option.

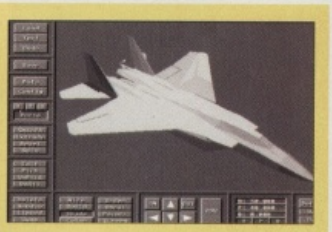
If you're using the program to create 3D lettering, you can type using any bit-mapped font (although point sizes over 80 are recommended). The program can then perform the same conversion and extrusion functions upon your text as it would on any other bit-mapped image. Although it can be difficult to acquire bit-mapped fonts of this size, some of the desk top publishing packages come with conversion programs to convert scalable fonts into ordinary bit-mapped ones.

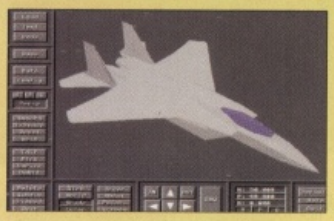
CONCLUSION

Pixel 3D Professional is easy to learn and fun to use. Some of the operations are very time consuming, and it would have been nice to see some kind of indicator so that you could tell that the program hadn't crashed (which it did on a couple of occasions). A valuable, but rather costly program which will be a useful addition to the 3Der's arsenal of tools. Compatible: Any Amiga with at least 1Mb Chip and 1Mb Fast RAM.

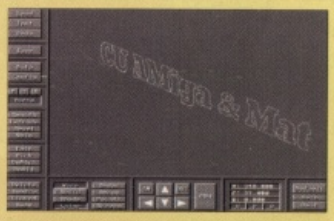
79%

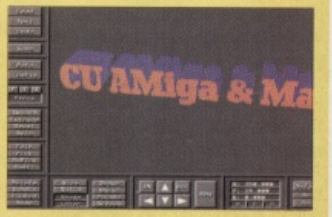






You can choose to view your objects as wireframe, solid or solid colour images.





You can type in any text using a bit-mapped font. It can then be extruded into three dimensions and given colour if you require.

GRAPHICS BOARDS

As wonderful as the Amiga's graphics are, if you want to enter the world of broadcast quality graphics, your going to need to upgrade to 24-bit. The obvious way to do this is with the aid of a graphics board, of which there are an ever increasing number.

If you want to add more than a splash of colour to your graphics, then you'll eventually want to consider purchasing a 24-bit graphics board. Here's an essential guide to the best boards around...

HARLEQUIN

FROM £800 PLUS VAT - AMIGA CENTRE SCOTLAND - 0896 87583

Graphics professionals expect their hardware to be of the best possible quality and pretty damn fast too. Many boards are unable to deliver, but one in particular has been proving itself for years.

I am talking, of course, about Harlequin from Amiga Centre Scotland (ACS). Launched in 1991, it quickly established itself as the Amiga's best graphics card. It may not be able to bend over backwards and do the spectacular tricks that some other cards can do, but what it does do it does exceptionally well.

The Harlequin is a 32-bit frame buffer. That means that it will hold and display a 24-bit image as well as providing an 8-bit alpha channel. Because the Harlequin plugs into a Zorro II slot and not the video slot, you'll have to provide a separate monitor for its display. Almost any monitor can be used, such as Commodore's popular 1084.

The board has three major selling points, the most important of which is its broadcast quality output. The RGB socket on the back of the card gives an output that even the BBC would be quite pleased with. If you've ever seen ACS at a Video or Graphics exhibition then you may have noticed a waveform monitor on their stand. This is a professional piece of equipment which shows engineers exactly how clean the Harlequin's output really is. This is incredibly important if you intend to use it for broadcast applications.

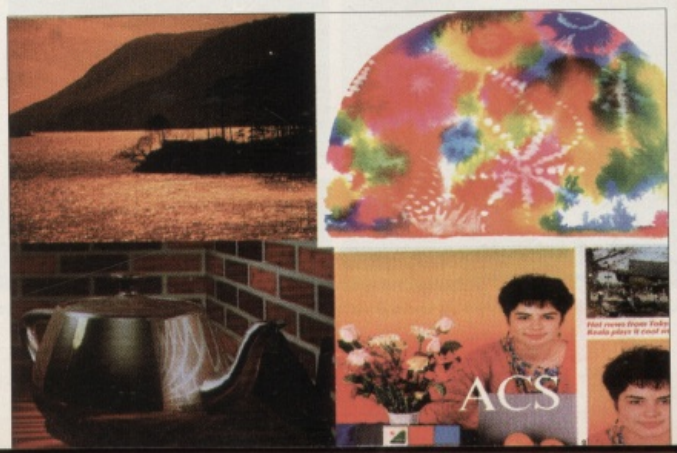
The speed of the Harlequin's hardware is the second reason why it's so popular. The supplied slideshow software provides many wipe effects in real time and the hardware can even play partial screen 24-bit animation. The clever thing about the hardware is that you can select from many different screen resolutions, from 740x576 up to 910x576, all in 32-bit. On the Harlequin 4000 model you can have two hardware buffered 32-bit screens or up to six 8-bit screens. In the 8-bit mode you can use colour cycling to bring otherwise static images to life.

CONCLUSION

Commercial software support for the Harlequin is also at professional levels. Its 24-bit display is directly supported by *ADPro, Real3D, VLab, Imagemaster, Caligari Broadcast* and *Sympatica*. This highlights the fact that if you're serious about computer graphics you should look upon the Harlequin as a most serious and highly professional graphics solution. Definitely quality at its best.

Compatible: Amiga 2000/ 3000/ 4000. A fast 32 bit processor and at least 5Mb RAM recommended.

96%



The essential accessory

Undoubtedly the best reason for buying the Harlequin is because of *TVPaint*. This additional piece of software costs around £600 and presents you with a formidable array of artist's tools and other painting facilities. Because the Harlequin uses the Zorro slot, which is much faster than the video slot, painting functions are very fast indeed. *TVPaint* has an excellent airbrush which gently blows paint in almost almost translucant layers onto the screen. Surprisingly, the program is as fast and flexible as the expensive high-end professional Quantel Paintbox system, a stand-alone art tool used in the broadcast fraternity!

TVPaint is currently at version 2 and gives complete control over the VLab frame grabber. This means you can grab live video frames directly into *TVPaint* for manipulation!

The ones who started it all

Xi Electronics Ltd. is a small independent electronics design company based in Scotland, who sometimes undertake rather unusual work – they once contracted for the design of an orange counting machine!

They started life in mid 1989 (originally trading as BBDP Electronics) manufacturing computer peripherals, one successful project being a fast SCSI interface for direct to disk recording on the Atari ST.

In June 1990 BBDP Electronics contracted to design a 24-bit frame buffer for the Commodore Amiga. The result, released in February 1991, was the ACS Harlequin 32-bit frame buffer. Xi then moved on to other non-Amiga design work but decided to revisit Amiga 24 bit-graphics in February 1992, which led to the independent development by Xi of the Harlequin Plus, which was officially launched at the Format '93 show in May.

As a result of the experience gained developing 24-bit graphics boards, and other contract video design work, Xi's emphasis has shifted towards mid-range video hardware centred on the Amiga, but they are still currently undertaking design work on other platforms.

Xi's design philosophy is to "concentrate on getting the basics right" rather than offering a myriad of spurious (and often flaky) bells and whistles. Some would say they have been very successful in achieving this aim.

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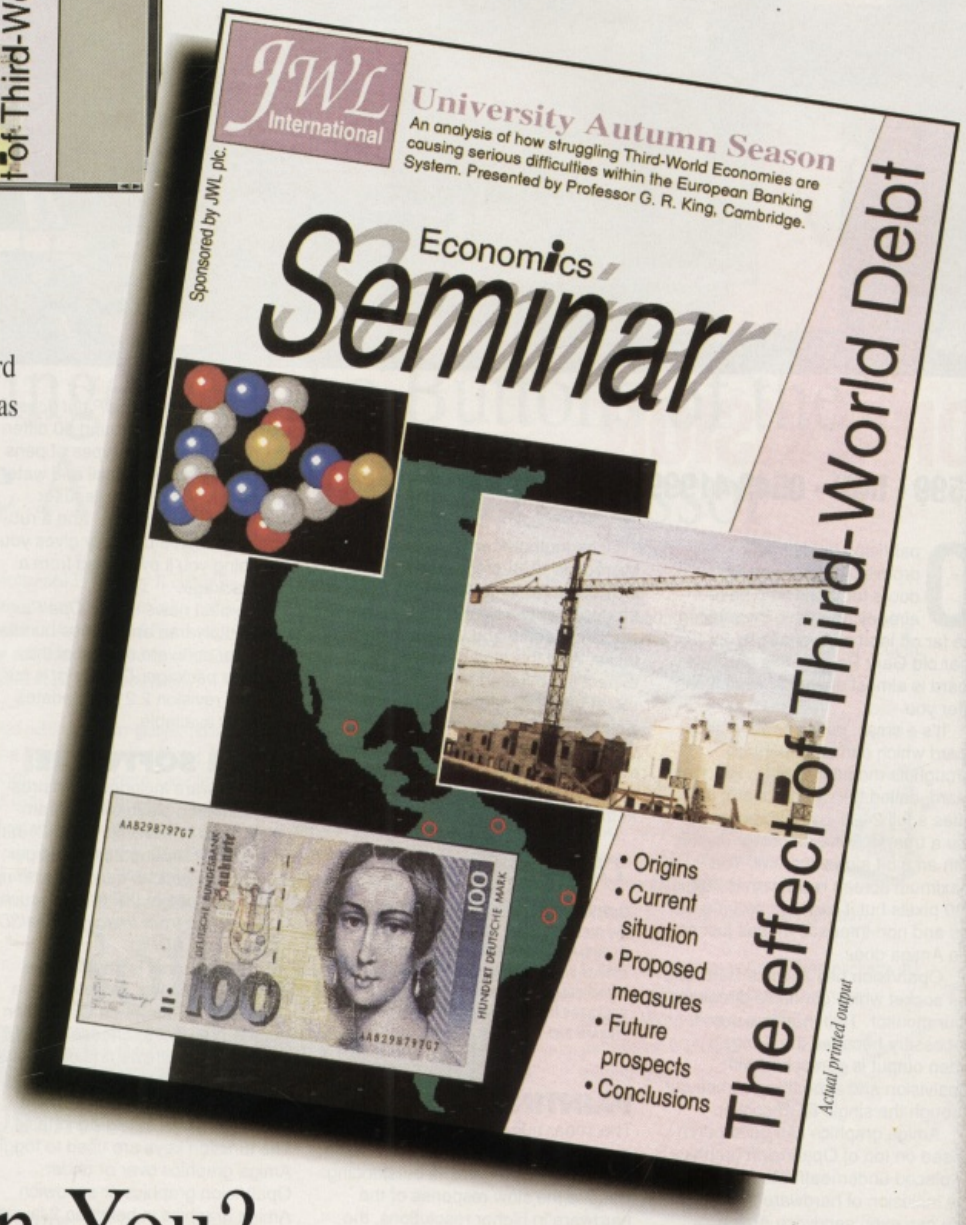
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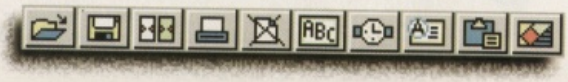

Because of its modular design, OpalVision can be expanded by plugging in hardware modules.

OPALVISION

£599 - INDI - 0543 419999

OpalVision holds many promises and opens new doors for those who have already bought it. Invented in the far off land of Australia by 22 year old Gary Rayner, this graphics board is almost unique in what it can offer you.

It's a small, neatly constructed board which can be expanded through its modular design. The main board, called the motherboard, provides a full 24-bit palette and gives you a true 16.8 million colour display with an 8 bit alpha channel. The maximum screen resolution is 768 x 580 pixels but it can also provide lo-res and non-interlace modes just as the Amiga does.

OpalVision has a single RGB output socket which connects directly to your monitor. Two monitors aren't necessary because the Amiga's video output is genlocked with Opalvision and everything comes out through the single RGB socket.

Amiga graphics can be superimposed on top of OpalVision graphics or placed underneath. Because of the inclusion of hardware stencils you can even sandwich Amiga graphics between two layers of OpalVision graphics!

The motherboard has a Microcode VLSI processor which provides a fair amount of real-time hardware shenanigans such as scrolling, fading and various palette tricks. With this kind of power you'd expect the bundled paint package to run at InterCity speeds. Sadly this isn't the case. The video update is slow at the best of times, and stamping down brushes in hi-res gives you a brief moment to run out and put the kettle on.

Third party support

OpalVision currently comes bundled with the most excellent ray tracing package, *Imagine 2*, which lets you see rendered scenes via OpalVision's 24-bit display. Direct support from other commercial packages include such goodies as *ADPro*, *Real3D* and *ImageFX*.

PAINTING SUCCESS

The shear number of features jammed into OpalVision's paint package, called *OpalPaint*, is outstanding. Despite the slow response of the hardware in higher resolutions, the results which can be achieved are stunning to say the least.

This praise for *OpalPaint* doesn't go unjustified. With around 50 different drawing modes, 7 types of pens (including airbrush, pencil and watercolour), 3 kinds of stencils, user definable paper textures, and a rub-through facility, it certainly gives you everything you'll ever need from a paint package.

The best news is that *OpalPaint* is absolutely free and comes bundled with other software as part of the complete package. *OpalPaint* is currently on revision 2.2 and updates are freely available.

MORE SOFTWARE!

Other software includes an impressive animation playback program which gives lo-res 8 bit, up to 24-bit, animation at around 25 frames per second. Animations can be made up from any series of IFF frames, such as the output from *Imagine*, *Real3D*, *Vista Pro*, or *ADPro*.

OpalPresents is another free package which lets you produce a show reel of your 24-bit OpalVision images. You get to choose from 16 different wipe effects and can overlay Amiga graphics on top if you like. *OpalHotKey* is a control program which runs as a background task. The function keys are used to toggle Amiga graphics over or under OpalVision graphics or sandwich Amiga graphics in between 2 layers of OpalVision graphics.

FLIGHT OF FANTASY?

As I mentioned earlier, OpalVision can be expanded in steps by adding various hardware modules. There are three of them priced between £600 and £1000 and these includes a 19" external production switcher taking 9 video and 10 audio inputs. It'll generate all kinds of wipes and effects before throwing the results out as composite, YC, or YUV.

The Roaster chip, according to OpalVision's marketing guys, can take several video inputs and wrap them around a sphere, complete with a light source in real time. Coupled with the ChromaKey functions, OpalVision is promising to make the Toaster look as old as it really is. Don't forget, OpalVision is an RGB machine which works in PAL and NTSC, whereas the Toaster can only work with the NTSC video standard.

CONCLUSION

So there you have it. The motherboard, bundled with some excellent software and the promised options to expand into a complete video production suite, make the OpalVision system look very sweet indeed.

Compatible: Amiga 2000/3000/4000 with Hard Disk and at least 1Mb Chip RAM and 2Mb Fast RAM.

96%

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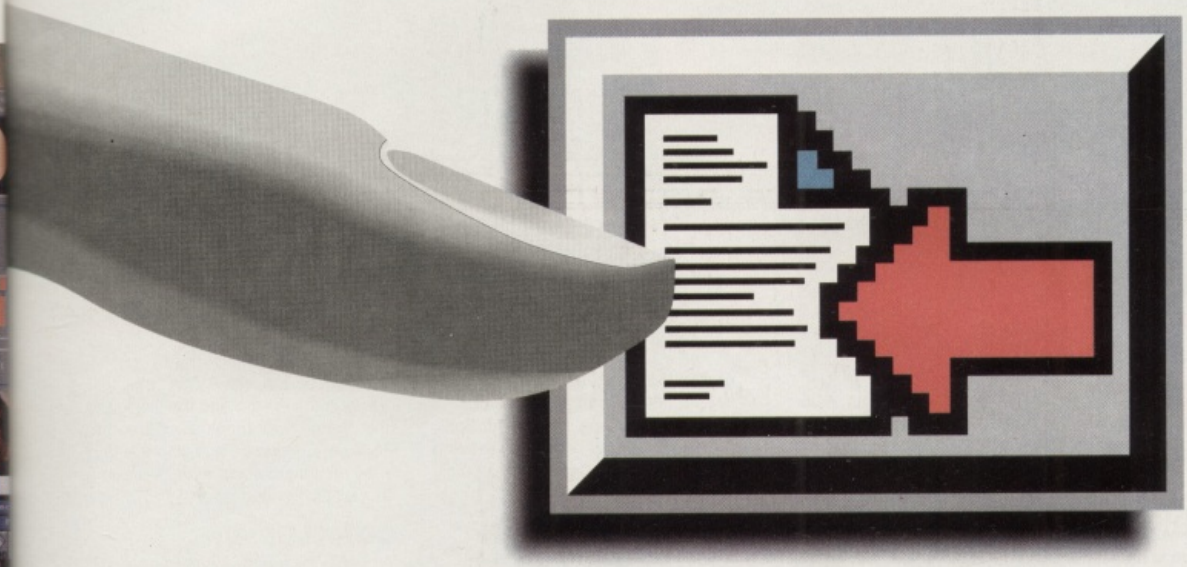

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CUA

AVIDEO

PRICE: £299 CONTACT: HI Q LTD, 081 909 2092

Upgrading to 24-bit graphics needn't be as expensive as you may think. AVideo is an internal option and can even transform an ageing A500 into a spectacular 24-bit machine.

Acquiring 16.8 million colours on an Amiga, equipped with the old 4096 colour chip set, can dramatically increase your machine's life span. Photo realistic images can be displayed on Workbench in resolutions of 724 x 566 without any fuss, and AVideo can even run 12 bit animations up to 25 frames per second!

The price you pay for such an upgrade is the loss of any warranty you have left on your machine. Considering an estimated 99% of machines which can work with AVideo have no warranty left, I don't see that as a problem!

INSTALLATION

Regrettably, you've got to pull the Amiga's Denise chip out of its socket in order to plug in AVideo. It's only a small board which plugs into Denise's IC socket and Denise gets to piggy back on top of the AVideo board.

The way it works is quite interesting. AVideo intercepts all of the video information that would normally get passed onto Denise. It then cunningly encodes its own 24-bit information before releasing the data back into the Amiga's system. Because the old Amigas were never intended to process more than 12 bit graphics, you can only view 4096 colour AVideo images coming out of the Amiga's RGB port.

To get all of the 16.8 million colours you need to connect AVideo's own RGB connector up to your monitor. If you install it inside an A500 you'll have to chisel a few inches off the back of your casing, but as I said, you probably don't have any warranty left anyway!

Just like Opalvision, IV24 and the FrameMachine, AVideo combines its own graphics with the Amiga's so you don't need a second monitor.

THE SOFTWARE

AVideo comes with about 7Mb of software! Sadly that doesn't include a paint program because the one it did have was axed. The reason for that is simple. The paint program was an absolute waste of time and was as slow as a number 79 bus travelling from Paris to Cairo, being pulled by a mule that can't map read. Yup, it was that bad!

The serious software includes *AVTune* which tunes AVideo's display in with your Amiga and another program simply called *AVideo*. This runs in the background and acts as a server. It's only necessary if you want to view 24-bit images through Workbench. *AVCmd* is used to bring up a file requester prompting you to select an image to display.

KEY IT THROUGH

AVideo images can only be seen through colour zero. This means that anything displayed from the Amiga which has colour 0 will appear transparent and reveal AVideo's display. If you have a genlock plugged into AVideo's output then you can also use absolute black in AVideo's display as a key colour. The key colour will be replaced by whatever signal you have running through your genlock.

In a nut shell, you can have three layers of video. The Amiga's display is always on top with AVideo in between the Amiga and the live video from the genlock running underneath. Plenty of fun can be had with this layering technique and it even has some serious applications too!

CONCLUSION

When AVideo was released nearly 2 years ago it was fantastic. The quality and price were unbeatable. But now, any A500 owners considering buying it with TVPaint should understand that buying an A1200, hard disk, extra RAM, and Brilliance is actually a cheaper solution. Likewise, A2/3000 owners should investigate OpalVision as an alternative.

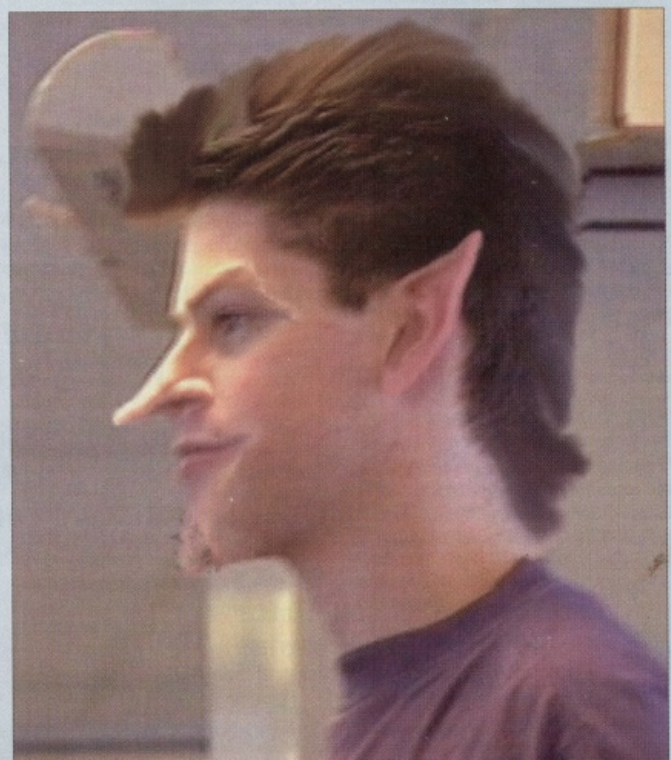
Compatible: Amiga A500/2000/3000 with a Hard Disk and 4Mb RAM.

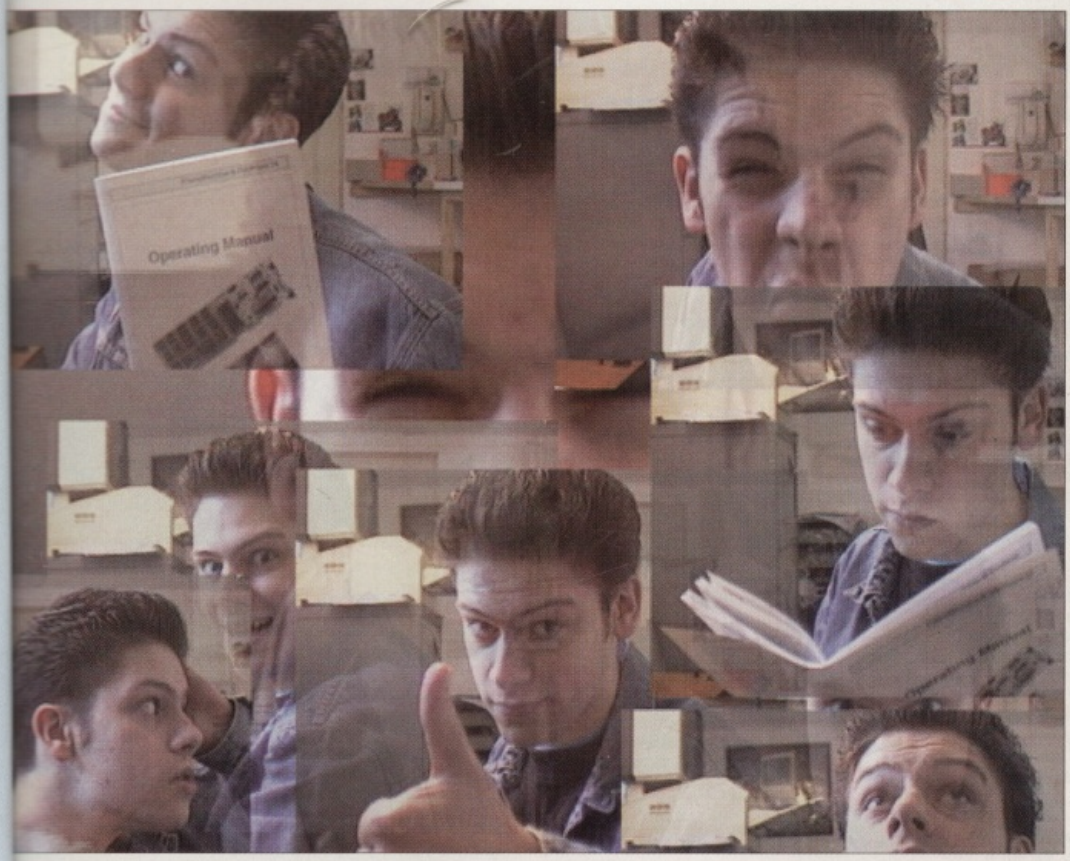
70%

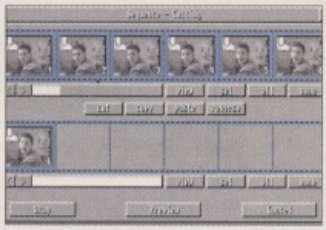
TV paint to the rescue!

The only paint package that you can get for AVideo is *TVPaint*. There's nothing wrong with that, TVPaint is a top notch paint program. However, after spending £300 on a budget 24-bit board, you shouldn't expect to spend £600 on a paint package for it!

If you do go ahead and buy AVideo with *TVPaint*, you'll be glad to know that it runs at a generous speed and using it can be quite pleasurable. Performance is almost as good as *TVPaint* running on the Harlequin!







Electronic Design's dynamic duo of FrameMachine and FM Prism offer oustanding value for money.

FRAMEMACHINE

£349.00

FM PRISM

£299.00 OR BOTH FOR £599.00

HI Q LTD - 081 909 2092

If digitising's your thing and real-time video grabbing and playback sounds intriguing, then don't you think you should be looking at Electronic-Design's dynamic duo?

FrameMachine is a high quality real-time frame grabber. Most real-time frame grabbers will digitise an image in just 1/25 of a second and maybe another image half a second later. That's no good if you're planning to grab a section of video running from a VCR or a live camera.

FrameMachine is the newest Amiga video digitiser on the block and claims to be able to grab 25 images per second, every second! Okay, it'll only do that in 256 shades of grey providing you have a fast 030 processor. Even if you have a boring 68000 you can still grab 18 images per second. But what if you want to digitise in colour?

Grabbing 25 images per second in 24-bit colour takes a hell of a lot of data shifting. To do this, the FrameMachine compromises and grabs 1/4 screen video (180 x 128) in 24-bit. Naturally, you can also play it back at the same rate it was grabbed at – 25 frames per second. However, you'll require the use of the FrameMachine's optional partner.

FM PRISM

FM Prism may sound like a component in a radio receiver but instead it's a small board which plugs directly on to the FrameMachine. Since the FrameMachine grabs 24-bit images, it makes perfect sense that you should be able to view the images in 24-bits. That's exactly what the FM Prism does.

Buying the Prism together with the FrameMachine dramatically enhances your system. You can monitor live video from either the built-in YC or composite inputs in real-time, full screen, in full colour and grab a frame at any point in time. Resolutions go up to 736 x 580 pixels in YUV which can easily be converted to 24-bit RGB and saved as an IFF image. Animations are saved in a new format called EDAN which can be played back as fast as they were grabbed via the Prism, or converted to IFF.

Connection to your monitor is very simple. You can either plug a second monitor into the FrameMachine to constantly monitor the video input and Prism buffer, or use a single monitor. The single monitor option superimposes the Amiga's display over the FrameMachine's using colour zero from the Amiga as the key colour.

CONCLUSION

The results achieved from the FrameMachine are no less than amazing. Providing you have a good quality video camera or VCR, the images will be crisp with no grain and excellent colour fidelity. In my opinion, it's a wee bit better than VLab for quality and convenience and the optional Prism display makes it a system which demands due respect. Apart from the tight fit I had when installing the FrameMachine, I can really recommend the system and applaud its manufacturer's, Electronic-Design.

Compatible: Amiga 2000/3000/4000 with 2Mb RAM.

95%

Software support

The software that comes with the FrameMachine is fairly straight forward and doesn't present any problems for first time users. Grabbing a frame or a sequence of live video requires no more than a few clicks with the mouse. A special processing screen allows you to cut and paste sections from an animation. It's a bit like digital video editing except sometimes when copying a clip it seemed to take forever!

The only negative thing about the FrameMachine is that there's no painting software available to support Prism's lovely 24-bit display. Instead you'll have to be content with using *ImageFX* or *Brilliance* and saving the results as 24-bit, then load the image into Prism's buffer.

I'm pleased to say that *ADPro* now comes with full support for both bits of hardware. Single frames can be grabbed directly within *ADPro* and converted to RGB more than twice as fast as the FrameMachine's native software! Saving 24-bit images to Prism's buffer is also very fast within *ADPro* and you can't help thinking that you've just spent the best £600 ever on your Amiga!

»

JARGON BUSTERS

Blimey, we use some big words, don't we?! We're not even sure what half of them mean, so we hired a passing school kid to explain what they all mean.

- 030 - An abbreviation for the Motorola 68030 processor. Fast processors such as these and the 040 are recommended for use with most graphics cards.

- 24-bit - Literally 24-bit just describes an area of memory available for storage. However in today's parlance it has become synonymous with graphics, 24-bits being the amount required to store a single true colour pixel. This pixel may be any one of 16,777,216 different colours. In other words, every single colour detectable by the human eye.

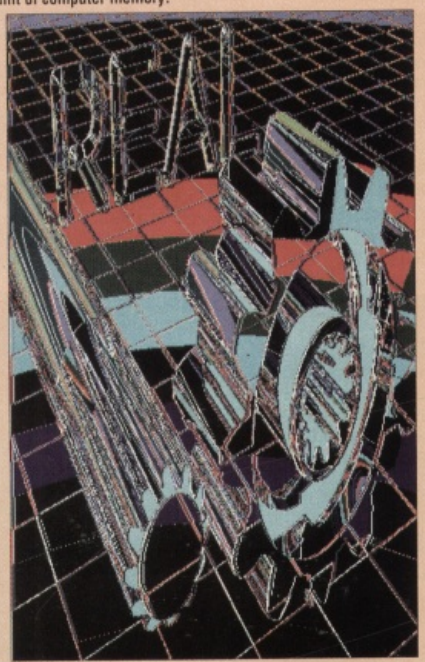
- 32-Bit - In computer graphics terms 32-bits is usually referred to as 24-bit with an 8-bit alpha channel.
  In computer hardware terms, 32-bits is generally used to describe the amount of memory that can be manipulated in a single operation. The higher the number of bits, the faster the machine. The Amiga 500 is only a 16-bit machine, whereas the A1200, CD32 and A4000s are all 32-bit computers.

- AGA - Stands for Advanced Graphics Architecture and is the phrase used to describe the graphics system on the new generation of Amigas. AGA graphics have numerous advantages including far higher resolutions, and support of significantly more colours on-screen at any one time. AGA was originally dubbed AA, referring to the set of chips that provided the extra features. Although this term is no longer used, you will sometimes hear references to AAA (pronounced triple A) machines. Although these don't yet exist, they are apparently the next generation of Amigas which are expected to include full 24-bit graphics.

- Alpha Channel - An alpha channel is an extra area of memory which is used to store graphic templates that are in turn used to perform special effects upon the main 24-bit image. Usually consisting of an extra 8 bit-planes, it can be used as a 256 level keyer to give variable transparency levels to an image.

- Anti-alias - The process where pixels of intermediate colour and brightness are used to remove "jaggies" from an image. Think of it as a softening effect.

- Bit - An abbreviation for binary digit. A bit is the smallest unit of computer memory.



- Bit-map - A bit map is the collective term for all of the layers of bit-planes that make up a computer graphic or display. See bit-plane below.

- Bit-Plane - Computer graphics are essentially stored in memory as a grid of bits where each bit represents a single pixel. By overlaying grids on each other, more colours can be represented in the computer's memory. A bit-plane is a single layer of bits representing a graphic.

- Composite - An encoded video standard which combines colour and luminance information in a single signal.

- Denise - The custom chip which handles screens and sprites from the original Amiga chip set.

- Extra-Halfbrite - A little used screen format which doubles the maximum number of non-HAM colours in low resolution from 32 to 64. It uses a form of trickery which simply duplicates the palette at half the brightness.

- Frame grabber - A device which can digitise an image from a video source.

- Frame store/buffer - A piece of hardware containing dedicated RAM which holds a graphical image.

- IFF - Stands for Interchange File Format. IFF is the standardised format that the Amiga uses to store graphics and sound samples. It was developed in conjunction with Electronic Arts back in the computer's earliest days. It was developed so that all software and hardware manufacturers would be able to work to a single data format which would allow the free exchange of graphics and sound between different programs.

- ILBM - Interleaved Bit-map. The technical term for an IFF graphics image.

- JPEG - Joint Experts Photographic Group. A group of electronics experts who got together to hammer out a standard format for photographic compression. The name is now synonymous with a special type of picture compression ideally suited to crunching digitised and real world images. JPEG compression can yield 75% disk and memory savings with less than a 5% drop in image quality; far too little to actually notice the difference.

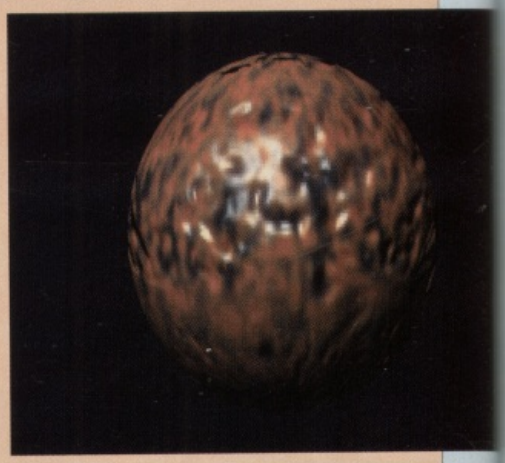
- Key Colour - A nominated colour which the computer is particularly aware of. Normally any graphics containing the key colour will be replaced by another screen or video source. Imagine it as a key hole effect.

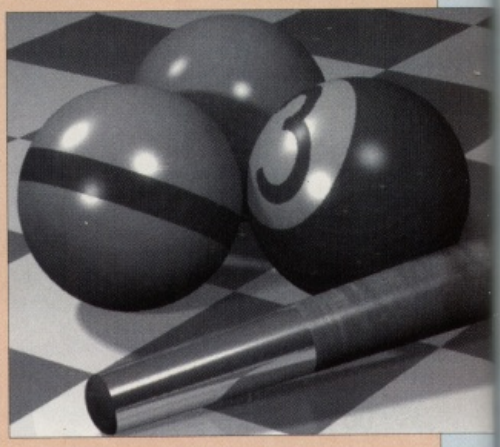
- HAM mode - Stands for Hold and Modify, and refers to a special trick that is used in all Amigas to increase the number of colours that can be placed on the screen at the same time. Every pixel is represented by a value for the Red, Green and Blue components of its colour. In ordinary screen modes, you can alter any of these three values from one pixel to the next, but the maximum number of colours that you can use on the screen at one time is relatively low (64 on non-AGA machines, and 256 on AGA ones). In HAM mode you can only alter the value of one component of a colour (the amount of red, green or blue) from one pixel to an adjacent one. Although this restricts the way that you use colour on the screen, it increases the on-screen palette to 4096 in non-AGA machines and 256,000 on AGA ones.

- MPEG - Motion Pictures Experts Group. The name of another group of experts who got together to come up with a standard for moving picture compression. Although their MPEG1 standard is widely used in computers such as CD32 and CD-i to provide Full Motion Video, the MPEG members are not satisfied with the quality, and have now proposed the MPEG2 standard for broadcast use.

- NTSC - National Television Standards Committee. The American video standard with 525 lines at 60Hz.

- PAL - Phased Alternate Lines. The European video standard featuring 625 lines at 50Hz.





- Pixel - Stands for Picture Element (Pictures=Pics=Pix, geddit?). The computer screen is like a grid divided into tens of thousands of little dots. Each dot is called a Pixel and it's the smallest piece of graphic information that you can control on the screen. If the resolution of the screen increases, the number of Pixels also rises, and their individual size decreases accordingly.

- Render - The process of constructing a screen image from data stored in memory. Primarily used to describe what happens when a 3D program starts converting three dimensional data into a real image. Also used to describe the process (usually by image processing software or graphics boards) of outputting an image to the screen.

- Resolution - Is the general term used to describe the number of pixels that make up a screen display. The higher the number, the smaller the pixels and the better the display.

- RGB - Red, Green, Blue. These are the real components of video which, providing all of the equipment and cables deal with RGB, gives the best possible image.

- YC - Luminance and Chrominance. (Sometimes called S Video) Both parts of this encoded signal (brightness and colour) are kept apart which gives a better quality image than composite, but not as good as YUV or RGB.

- YUV - Professional video equipment uses YUV rather than RGB. It's often referred to as component.

- Zorro - The name given to the Amiga's expansion slot. You should assume that most references refer to Zorro II, as found on the A2000/3000/4000. (3000/4000 machines have Zorro III which can take Zorro II cards.)

ADDRESS BOOK

If you want to get in touch with any of the companies we've mentioned in this graphics round-up, then you'll find their full names, addresses and telephone numbers printed below.

CADVision UK
419 Richmond Road
Twickenham
Middlesex
TW1 2EX
TeL: 081 892 3637

Amiga Centre Scotland
Harlequin Houše
Walkerburn
Peebleshire
Scotland
EH43 6AZ
Tel: 089 687 583

Digital Multimedia
Crest House
102-104 Church Road
Teddington
Middlesex
TW11 8PY
Tel: 081 977 1105
Fax: 081 943 3151

Electronic Arts
90 Heron Drive
Langley
Berkshire
SL3 8XP
Tel: 0753 549442
Fax: 0753 546672

Entertainment International
677 High Road
North Finchley
London
N12
Tel: 081 343 9143
Fax: 081 343 7447

First Computer Centre
Unit 3
Armley Park Court
Stanningley Road
Leeds
LS12 2AE
Tel: 0532 319444
Fax: 0532 319191

Hi Q
176 Kenton Lane
Harrow
Middlesex
HA3 8SU
Tel: 081 909 2092
Fax: 081 909 3885

Hobbyte Computing
10 Market Place
St Albans
Hertfordshire
AL3 5DG
Tel: 0727 856005

Impulse, Inc.
8416 Xerxes Avenue North
Brooklyn Park
MN 55444, USA
Tel: 0101 612 425 0557
Fax: 0101 612 425 0701

Indi
Unit 1
Ringway Industrial Estate
Eastern Avenue
Lichfield
Staffordshire
WS13 7SS
Tel: 0543 419999
Fax: 0543 418079

Infogrames Ltd
14 Smedley Street
Clapham
London
SW4 6PF
Tel: 071 738 8199
Fax: 071 498 7593

Meridian Distribution
East House
East Road Industrial Estate
London
SW19 1AH
Tel: 081 543 3500

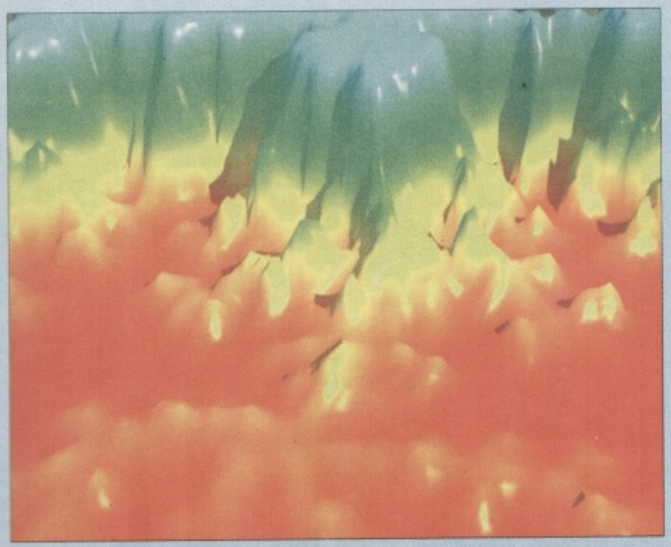
Micropace
Unit 10
Perth Trading Estate
Perth Avenue
Slough
Berkshire
SL1 4XX
Tel: 0753 551888
Fax: 0753 551211

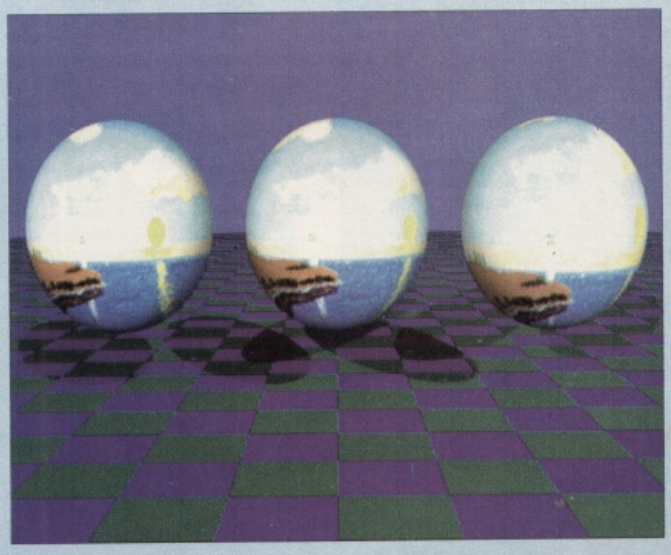
Radiance Software
2715 Klein Road
San Jose
CA 95148
USA
Tel: 0101 408 270 7420

SCALA UK LIMITED
Mill Studio
Crane Mead
Ware
Hertfordshire
SG12 9PY
Tel: 0920 444294
Fax: 0920 444230

Silica Systems
1-4 The Mews
Hatherley Road
Sidcup
Kent
DA14 4DS
Tel: 081 309 1111

Software Business
Cromwell Business Centre
New Road
St Ives
Huntingdon
Cambridgeshire
PE17 4BG
Tel: 0480 496497





whatever

you

wanna

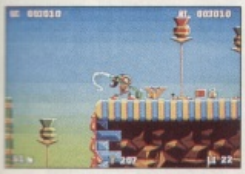
play

we've got it..

ARCADE PLATFORM

ZOOL 2

ZOOL, and his female companion **ZOOZ**, face a challenge which wilts the knees of the toughest Ninja's in this state of the art **PLATFORM ARCADE ACTION** sequel. **KROOL** and his accomplice **MENTAL BLOCK** are once again out to wipe imagination from the face of existence. Playing **ZOOL** *or* **ZOOZ** fight your way through **NINE** massive levels of hugely varied and enjoyable gameplay. Meet **ZOON**, a two headed alien dog, one head stupid, the other highly intelligent.



Features Include:

- Play either **ZOOL** or the all new **ZOOZ**, each with their own special strengths.
- A wide variety of highly intelligent enemies.
- Many varied power ups and collectibles.
- Hidden bonus rooms and secret levels.
- Sizzling sound FX and a choice of in game tunes.
- Nine huge levels.

"The classic sequel to 1992's biggest selling Amiga game".

ADVENTURE/STRATEGY

K240

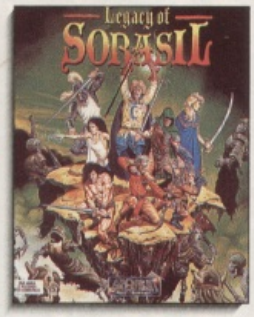
Only when you take control of **K240** in this superb **STRATEGY** game will you understand what real pressure is. The Terran Empire has expanded. Mankind and six Alien races are struggling to maintain peace in the face of dwindling resources. Is destruction inevitable.

You are the Commander of the mission to explore and exploit **K240**, but can you build a successful and peaceful colony deep in the recesses of space, or will greed and aggression bring the empire down.

Features Include:

- 6 different Alien life forms.
- 8 different types of space crafts.
- 16 different types of weapons and shields.
- Fully designable asteroid field interface.
- Highly intelligent enemy colonies.
- 40 different building structures.
- A vast range of complex interactions to understand and control.

FANTASY & ROLEPLAY



LEGACY OF SORASIL

THE LEGACY OF SORASIL is a fantastic and huge world of adventure. The fabled land of Rhia has fallen foul of a mysterious plague. Choose a party of intrepid adventurers from 8 would be Heroes and try to return the land to it's peaceful state. Battle your way through 10 vast stages against a legion of highly intelligent foes. Endless hours of solid and far reaching gameplay.

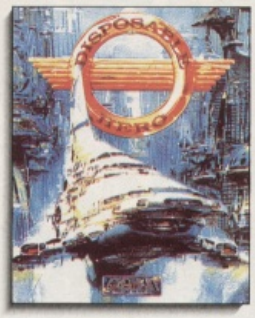
Features Include:

- 10 perilous quests to be completed.
- Stunning 3D isometric display.
- Simple point and click interface.
- 8 heroes, all with specialist skills and abilities.
- Eerie sound FX and tunes.
- Fully self mapping.

"If you want challenging gameplay and a game that's going to last you can't go far wrong with this".

CU Amiga

SHOOT 'EM UP



DISPOSABLE HERO

Get that trigger finger ready for an **ARCADE SHOOT 'EM UP** that takes up the genre where others have feared to tread. The Free Worlds lie technologically bankrupt. An Alien tyranny threatens mankind. As a certified **D-HERO** it is your task to fight your way through 6 levels of non-stop heart pumping finger sweating eyeball racing thumb busting, nerve jangling action to penetrate the alien strongholds.

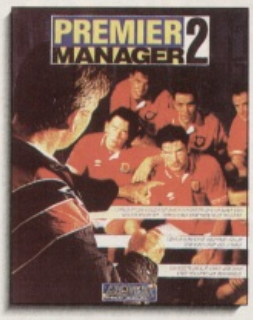
Features Include:

- Arcade quality graphics, backdrops and animation.
- Fully adjustable sound FX and in game tunes.
- Hundreds of weapon configurations.
- Mind blowing Mid-level and End-level guardians.
- Choice of assault craft with Four levels of difficulty.

"First impressions? whoah! blast, blast, boom! death, guns, more death, action and excitement!"

The One

FOOTBALL STRATEGY



PREMIER MANAGER 2

PREMIER MANAGER transformed the face of **STRATEGY** football management games with it's accessible and enjoyable game style. It has remained in the charts since it's release late in 1992. And now, **PREMIER MANAGER 2** is ready with a whole host of added features.

Have you the management skills to turn around and improve your teams performance?

Get ready to blow the whistle on **THE** football game for 1993.

Features Include:

- 16 playing formations with 8 playing styles and 12 match tactics.
- Negotiate wages, bonuses and contracts.
- Comprehensive banking system with changeable interest rates.
- Up to 26 players per team with limit of 4 foreign.
- Set ticket prices and crowd control.
- **IMMEDIATE** sacking possible if you're not up to the job.

"This really is the best bits of all the footy games, bundled together and laid out on a golden plate for you".

The One

GREMLIN®

GREMLIN GRAPHICS SOFTWARE LIMITED. CARVER HOUSE, 2-4 CARVER STREET, SHEFFIELD S1 4FS. TEL 0742 753423

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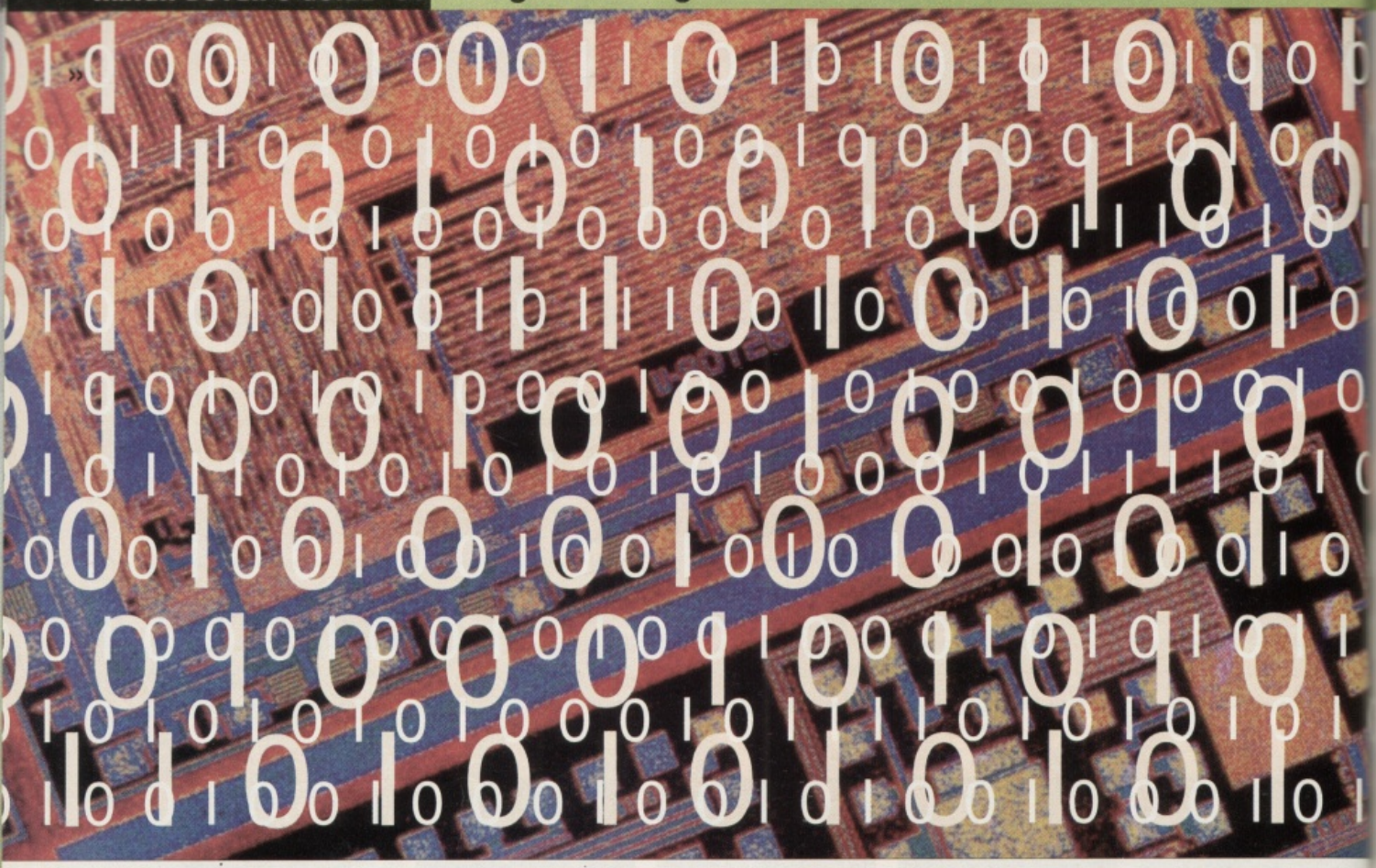

PROGRAMMING LANGUAGES

If you've had enough of using other people's software, then the logical thing to do is to write your own. But how do you get started? Read on...

We all enjoy using programs written by so-called 'professional' programmers. Whether you get your kicks from playing the latest games, dabbling with the latest paint program or (if you're very strange) knocking up a 'Profit & Loss' statement with the latest Amiga spreadsheet program. But how many times have you ever wished that your favourite program had that extra feature that you really need? Problem is, programmers have to produce products that will appeal to a broad spectrum of users and so it's impossible for them to account for every eventuality. The answer of course lies in programming your own software. If you can't find a program that will do the job that you want it to do, then why not have a go at writing your own?

Armed with a programming language, there's no reason whatsoever why you couldn't write anything from a game, a utility or even a serious program like a spreadsheet or a database. That's not to say that a programming language will write your programs for you. Far from it. In many ways, a programming language is a bit like a toolkit you'd use to work on a car - everything you need to perform any type of work on a car is there, but that doesn't necessarily mean that you're a fully qualified motor mechanic once you've bought your toolkit. As long as you understand exactly what each tool is capable of, how you use those tools is limited only by your own knowledge.

STEP BY STEP

Don't let this put you off, though. It's a common misconception that programming is difficult. Okay, if you're intending to write a program that can wrap a flat 2D image onto a cube, then it's going to be difficult. But then the difficulty comes not from programming such a utility, but understanding how such transformations actually work. If you're prepared to put in the work to learn how to program, then you'll amaze yourself just how easy programming can really be!

So what is a program? This may seem pretty obvious, but very few people actually realise what a program really is. Put simply, a program is nothing more than a list of instructions that tell the Amiga how to perform a given task as a series of steps. Once again, there's a definite comparision to be made. Say, for example, you wanted to change the oil in your car. You'd start by jacking up the front of your car and then you'd place a drip tray underneath the car's sump to catch the oil. Then you'd unscrew the sump screw to allow the oil to drain from the sump into the drip tray. Finally, you'd change the oil filter, replace the sump screw and top up the engine with the new oil. So what's this got to do with programming? Well, without even knowing it we've written a sort of program. Okay, so it's not quite assembler or even BASIC, but the theory is pretty much the same – in order to get the computer to perform a given task, highly detailed instructions are given to it in the form of a sort of 'step-by-step' guide.

COMMAND PERFORMANCE

A programming language gives you a selection of commands, each of which does a particular job (print a string of text onto the screen, make

A programming language is possibly the most powerful utility you can buy for your Amiga. With programming languages like assembler, Blitz Basic and AMOS, you can even write your own games!

a decision etc). On their own, they're pretty useless – string them together to form a program, however, and the results are a lot more exciting. Obviously there are limitations. A programming language, for example, only understands the commands that are built into it and even then the commands have to be entered using a strict syntax.

Programming languages are a bit like human languages. Each achieves pretty much the same results, but all of them use different commands that the others cannot understand. The command in BASIC to print a line of text onto the screen is 'Print' and the command in 'C' to achieve the same result is 'Printf()' - pretty similar sure, but enter 'Printf()' into a BASIC listing and it won't understand it. If you buy a BASIC interpreter and feed it a simple BASIC listing prepared using a different type of BASIC, however, it should (in theory at least!) work. As you get deeper into programming, however, differences to start to show – the AMOS command to open a screen is 'Screen Open' whereas the HiSoft BASIC command to open a screen is simply 'Screen', for example. The core of BASIC remains the same, however – both AMOS and HiSoft BASIC will understand commands like 'Print', 'Input' and 'Gosub' etc.

MULTIPLE CHOICE

The Amiga certainly isn't starved of its fare share of programming languages. Most people start their programming careers with BASIC, but there's no reason whatsoever why you couldn't learn to program in Pascal, 'C', Forth, ARexx or even assembler. Even then, most of these languages are available from several vendors – if you want a BASIC language, for example, then there's no fewer than four different packages to choose from! Even then, other versions of BASIC can still be found floating around in the bargain basket at your local software store.

So why are there so many different languages available? Well, in an ideal world there would be only one programming language that could do everything but unfortunately this isn't the case – every programming language has its own particular strengths and weaknesses. Take assembler, for example. Everyone knows that assembler code runs faster than anything else, but learning to program in assembler is notoriously difficult. BASIC, on the other hand, is very easy to learn but BASIC programs don't generally run that fast. Languages like 'C' and 'Pascal' provide a good balance between the two, but even then they're not that easy to learn and both require a lot more work to get the same results possible from BASIC. Even opening an Intuition screen can take large amounts of code - in BASIC, however, you can open a screen with a single command!

Be careful when buying a programming language too – if you want your programs to be 'stand-alone' (that is, they run completely separate from the programming language package), then you'll almost certainly want a compiler. A compiler is a utility that converts the programs you write into machine code programs that can be run by your Amiga without assistance from the package that you used to enter the program in the first place. Some packages either don't need compilers (assemblers convert code directly to machine »

The good programming guide

Just about anyone can learn to program, but very few people learn how to program well. Here are a couple of guidelines that will help you to make your code not only easier to understand, but more efficient too.

1. Adequately comment your code.
You may understand how your code works when you first enter it, but try returning to it after a couple of months and you'll find it almost totally unreadable unless you add comments to your code. By breaking up the code and adding short comments to each major process makes your code much more readable. What's more, it's a good habit to learn – if you get a job as a programmer, your employers will insist that your code is commented so that others can amend it in your absence.

2. Use descriptive variable names.
Using descriptive variable names causes no speed penalties whatsoever and can make your code far more readable. For example, would you know what the variable 'L' holds? What about the variable 'NumberOfLives'? Get the point!?

3. Modular programming.
If you take a course in computer programming, the one technique that will be drummed into you is that of Modular programming. Modular programming simply means that your code is split into 'subroutines' that can be called over and over again from different points within your program. Not only do subroutines save you the hassle of having to enter the same section of code over and over again, but it can also make your code more readable. Once again, make sure your subroutines have descriptive names ('Proc CALCULATESCORE', for example).

Buyer's checklist

Choosing the language that is right for you is very much a matter of personal taste but it's also important to choose a language that is best suited to your particular needs. If you're in the market for a programming language, then it's worth taking time out to ask yourself the following questions each time you consider a package. If you follow these simple guidelines, you won't go far wrong.

1. Can it be used to produce the sort of programs I want to write?
Pretty obvious this one. All programming languages have their own individual strengths and weaknesses that should be assessed. If you want a language that will allow you to write fast arcade games, for example, then you want to make sure that your chosen language can access the Amiga's custom chips at a hardware level. Speed is important too, so there's little point in choosing a language that produces programs that run at a snails pace.

Some languages are geared specifically towards hardware-level programming only, but they're of little use if you want to write software that makes use of the Amiga's operating system routines. If you want to produce applications software, you should therefore go for a language that will allow you to access them.

2. Will I be able to run my programs independantly of the package?
Unless you're writing software for your own particular needs and you have no intention whatsoever of sharing your programming gems, then make sure that your chosen package allows you to distribute your wares without breaking any copyright laws. Even if a programming language doesn't include a compiler, some offer what is known as a 'Runtime System', that is, a specially cut down version of the interpreter that will run your programs without infringing the publisher's copyright.

3. If it's a language I don't already know, how good is the documentation?
Learning any new programming language can be a hard slog if you don't already know the language inside out, so it's important to make sure that the manuals that come with the package are up to scratch. A good example of this is Blitz BASIC - it's a great language, but the manuals bundled with the package are so bad that you need to be highly technical to understand them. Even if the manuals are bad, are there books available that will teach you the language? There are loads of books that will teach you to program in 'C', for example.

4. Will it run on my system?
Some programming languages require heaps or memory and a hard disk, so make sure that the language that you choose will run without problems on your particular system. AMOS Professional, for example, works on a 1 Mb Amiga but you really do need more RAM to get the most from it.

Programming jargon explained

Interpreter - If you use a programming language that doesn't include a compiler, then the only way that it can be run is for the language to 'interpret' each line as it goes along. Many dialects of BASIC use this approach – as the interpreter reaches each line in your program, it translates it into the numbers that your Amiga understands. Once translated, the line is then executed. The real problem with an interpreter is that once it moves onto the next line in a program, the translation it performed on the previous line is forgotten. This creates speed problems if your program uses a loop as the interpreter has to re-translate the same lines again each time the loop is performed.

Compiler - A compiler is a program that takes your program code and converts it into a format that can be understood directly by your Amiga. As a result, compiled programs can be run independantly of the package used to create them. Compiled code runs much faster than interpreted code because each line in your program is translated into machine code when the program is compiled. As a result, it doesn't need to be translated 'line by line' as the entire program is stored in its translated form.

Assembler - If you want to write programs that run as fast as possible, then an assembler is the only choice. An assembler takes programs written in 'assembly' language and converts them into machine code. Many confuse assembly language with assembly code – assembly code is nothing more than a human-readable form of machine code. Unless an assembly language program is 'assembled' into machine code, the Amiga will not understand it.

Source Code - Source code is a jargon term for the text files that you create in a text editor or a specialist editor which a programming language converts into the machine language instructions that the Amiga can understand.

Object Code - Object code is a term for a program that has been converted from source code into a machine language program that your Amiga can understand. To a human, object code is nothing more than a garbled mess of numbers.

Debugger - If you find a 'bug' in one of your programs, an assembler allows you to quickly and easily track it down by single stepping through your program to see the effect of each instruction. Once found, you can then amend your source code and either compile or assemble it again.

Linker - In order for a compiled program to run, the compiler must attach to it a number of extra object files that get your program running each time it is run. A linker takes these files and tacks them onto your object code.

'Include' files - Built into every Amiga is a huge collection of routines that are used by just about any program that doesn't 'hit the hardware' to perform such tasks as opening screens and windows, handling gadgets etc. In order to access these routines, you need to make use of what the techies call 'Include' files. These include files contain definitions that tell your program where the ROM routines can be found and how they should be accessed.

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E073 +PICTURE AND LETTER(A)
E074 +AMIGA BEGIN GUIDE(A)
E75 +WORLD WAR 2(A)

CLIPARTS

CA01 +COLOUR CARTOON
C015 +FS CLIPART 1-5
C025 +HARLEQUIN VOL 1
C026 +VOLUME 2
C027 +HARLEQUIN VIDEO 1
C030 +FONTS ASSURFACE
C027 +DYAMITE FONTS 2
C028 +AMSOFT FONT CLIP
C029 +AMSOFT FONT CLIP 2
C030 +VARIOUS PRINT
C031 +EXCELLE FONT CLIPART
C032 +DISNEY CLIPART
C033 +COMIC CLIPART
C034 +SPACE CLIPART
C035 +DELUXE FONTS (3)
C043 +PRINT & LOGO
C044 +COLOUR CLIPART 1
C051 +CLIPART VOL 1-20
C101 +IFF PIC CLIPART 1-24

FONTS

F001 +FS FONT 1-5
F015 +DELUXE PAINT 1
F016 +DELUXE PAINT 2
F017 +DELUXE PAINT 3
F018 +DELUXE PAINT 4
F020 +HALLOWE'EN
F021 +COMPUTER EYE FONT 1
F024 +COMPUTER EYE FONT 2
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F040 +DIGGY FONT VOL 1
F045 +MEGA FONT VOL 1
F050 +PS LOGO FONT 1-9
F052 +FONT (1-7)
F070 +PAGE STREAM FONT (1-6)

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S172 +HOUSE SAMPLES B
S173 +HOUSE SAMPLES C
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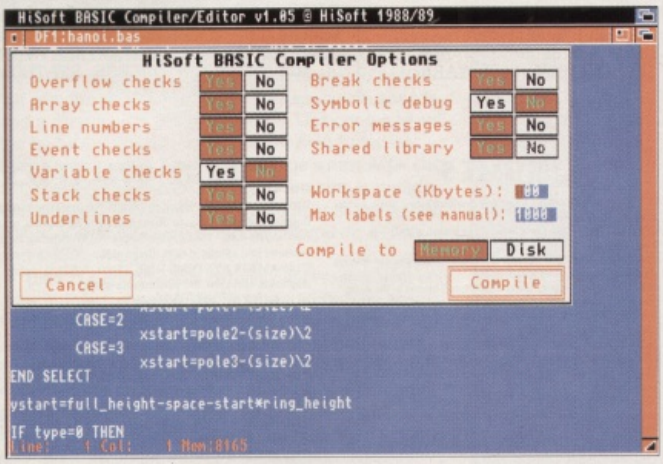


HiSoft's BASIC programming language may be growing rather long in the tooth these days, but it's still the only system that is fully compatible with AmigaBASIC.

Still going strong in the face of such stiff competition as Blitz Basic 2 and AMOS Professional is HiSoft BASIC, a combined BASIC editor and compiler from the authors of Devpac. HiSoft BASIC is the only BASIC programming language that fully supports such industry standards as MicroSoft Quick Basic 5 on the PC and (more important to Amiga users at least) Commodore's own AmigaBASIC interpreter. HiSoft BASIC can read source files from both these languages and compile them into stand-alone programs without you having the bother of translating them first.

HiSoft plan to release version 2 of its BASIC language system 'sometime after Christmas' although at the time of going to press exact specification-type details were non-existant. When you consider that HiSoft BASIC 2 has been put on hold time and time again, even this release date seems somewhat optimistic. In the meantime, HiSoft still see the original release as a viable product.

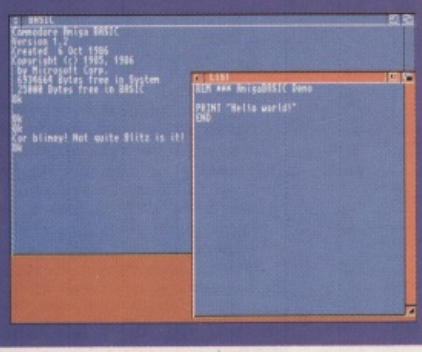
Specification wise, HiSoft BASIC is certainly showing its age. Although the speed of code execution is a vast improvement over Commodore's own AmigaBASIC interpreter (the language that HiSoft BASIC is based upon), HiSoft BASIC no longer cuts it as a serious option with the likes of AMOS and Blitz breathing down its neck. HiSoft really should get version 2 out onto the market if they want to be taken seriously.

75%

In the beginning...

Unless you've been using Amigas for a number of years, you may not be aware that Commodore used to bundle a BASIC programming language with all Amigas. Designed and written by MicroSoft (the people behind PC programs like 'Word' and the PC's pathetic attempt at a Workbench environment, 'Windows'), AmigaBASIC was a very slow BASIC interpreter that offered fairly minimal support for the Amiga's special capabilities. Commodore eventually realised just how naff AmigaBASIC really was and they eventually stopped bundling it with Amigas with the release of the A500 Plus and Workbench 2.0.

AmigaBASIC wasn't the Amiga's first BASIC language, however. Back in the days when the Amiga A1000 was still Commodore's new baby, the machine was bundled with a BASIC interpreter called 'ABasic' written by the authors of AmigaDOS, MetaComco. Many veteran Amiga owners still believe that ABasic was considerably better than AmigaBASIC although it too is no match for the likes of AMOS and Blitz.



Up until the release of the A500 Plus, this is the Basic language that was bundled with all Amigas. It was slow, underpowered and totally out of date – no wonder Commodore dropped it!

AMOS Professional

£49.95 - Europress Software - 0625 859333

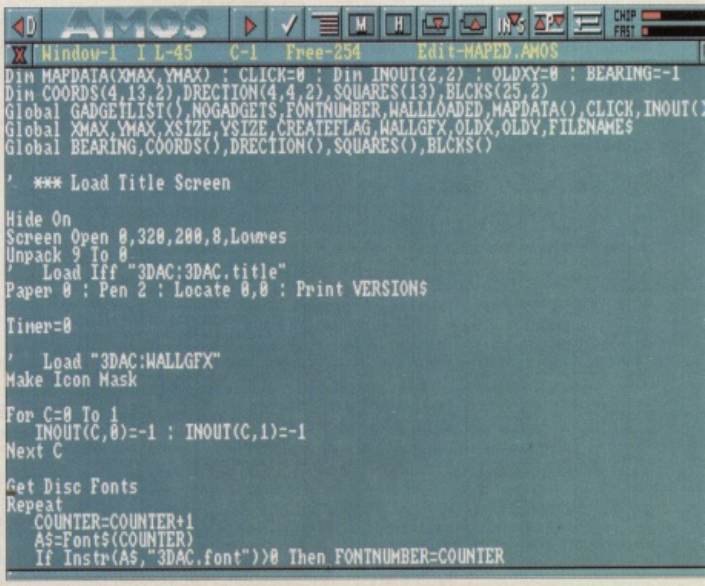
Francois Lionet's AMOS has been floating around for a few years now during which time it has earned itself a formiddable reputation thanks to its (until recently) unrivalled programming power. The original AMOS (now renamed AMOS Classic) was the first high level Amiga programming language to allow direct access to the Amiga's hardware without having to spend hours writing code to set up the Amiga's custom chips. AMOS has moved on since the original release with the arrival of two new versions of the language, Easy AMOS (a stripped down version of AMOS Classic) and Europress' new flagship, AMOS Professional.

Coupled with the recent release of the AMOS Professional Compiler (£35) which allows you to compile your AMOS creations into super-fast machine code, AMOS Professional still provides the easiest to use and most powerful BASIC programming language available for the Amiga. The basic AMOS instruction set (which consists of over 700+ commands) can easily be extended with the addition of language extensions such as Europress' own AMOS 3D (which allows you to add 3D graphics to your AMOS creations) and even PD extensions such as 'Turbo'.

The AMOS programming environment consists of a sophisticated editor which allows you to edit your source code and then run (or even compile) it without having to leave the editor. Europress also include a number of handy utility programs (or 'accessories' as they call them) that make software development that bit easier. These include a powerful object editor (for the creation of sprites, bobs and 'icons'), a sample bank maker (pull together all your programs samples into a single file) and an AMAL Editor which makes writing programs in AMOS' powerful interrupt-driven animation language an absolute doddle.

The speed of AMOS code may not quite match that of Blitz Basic, but this is more than offset by AMOS' ease of use, accessibility and raw programming power. Put simply, AMOS reigns supreme as the Amiga BASIC language.

91%



Europress' recent lack of commitment to AMOS is rather disturbing but that shouldn't put you off the language – it's still the easiest (and one of the most powerful) BASIC languages available on the Amiga.

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G180 **WAR** - Could be considered Space Chess.
G182 **TREASURE ISLAND** - Game for kids.
G183 **BOUNCE 'N' BLAST** - Highly praised platform game, almost of a commercial quality.
G193 **HELLZONE** - Space shoot-em-up, similar to R-Type. *A1200 USERS, DISABLE CPU CACHES*
G196 **CAG** - Stands for CREATE ADVENTURE GAMES, make your own text adventures with this easy to use engine.
G200 **FIGHTING WARRIORS** - 1 or 2 player martial arts beat em up with large well animated sprites and special moves. V.Good.
G202 **A NIGHT AT THE TOP** - Atmospheric text adventure which dumps you in at the deep end - 40 stories up.
G205 **TOP OF THE LEAGUE** - Another soccer management game which gives you the oppotunity to run your own team and take them and you, to the top of the league.
G206/207 (2 DISKS) **OLEMPIAD** - Sports events with lemmings as the stars.
G210/211 (2 DISKS) **TALISMAN** - Big graphic adventure game. Excellent. *REQUIRES 2 MEGABYTES*
G212 **FRUSTRATION** - Incredible text based adventure, unsurpassed in depth and detail.
G217 **UCHESS** - Chess game that uses the AGA chipset. *REQUIRES 4 MEGABYTES, A1200 ONLY*
G221 **BOW & ARROW** - Archery game.
G224 **OBLIVION** - Super fast defender clone.
G226 **MORIA v5.4** - Big RPG with many dungeons to explore, with lots to do. Even has a town you can explore and visit the shops.
G229 **GIGER TETRIS** - AGA Tetris. *1200 ONLY*
G232 **MONACO** - Clone of an old arcade game. Fast and furious.
G234 **WOT'S IT'S NAME** - Brilliant trivia board game.
G237 **GAMMON** - Good computer version of Backgammon.
G238 **TETREN** - Tetris with lots of added extras. Worth a look.
G241 **IMPERIAL WALKER** - Take control of an X-wing fighter and stop the imperial walkers from reaching the allied HQ.
G245 **ALL ROUNDER** - Cricket simulation like none other.
G246 **WIBBLE WORLD GIDDY** - Possibly the best platform, puzzle game ever produced for the PD market. A must.
G247 **FLEUCH** - C63 Thrust clone. Skillful game.
G249 **PSYCHO SANTA** - A game for Christmas.
G255 **AMOS CRICKET** - Shareware Cricket game. Lots of features
G256 **SHANGHAI '93** - Oriental tiles game.
G257 **DELUXE PACMAN V1.4** - The best Pacman clone around. Even includes power ups.
G262 **BLUE DIAMONDS 4** - Boulderdash clone. Good stuff.

USEFUL UTILITIES

U158 **NOERRORS** - Hides physically damaged tracks on both floppies and hard disks. In effect making useless disks, usuable.
U157 **ARQ 0.99** - Changes the boring old Workbench requester windows into animated ones. Quite neat.
U146 **AMIGA SYSTEMS DISK** - Host of Amiga system diagnostic checkers, and performance testers.
U111 **GOLF SCORE** - Golf tally recorder.
U112 **WORD SQUARE SOLVER** - Finds those hidden words in those word square puzzles.
U167 **BIORHYTHMS** - Plots your personal graph for any month of the year: Physical, Emotional, Intellectual.
U180 **BROWSER II** - Good file transfering programme, and much more.
U191 **TYPING TESTER** - Evaluates your typing speed.
U206 **RACE RATER** - Horse racing, outcome predictor. Works on statistical data you enter.
U215 **FREECOPY** - Removes various proctection schemes from a massive list of commercial games.
U216 **BON APPETIT** - Recipe database.
U267 **SPECTRUM EMULATOR V1.4** - Run old speccy games on your *AMIGA*.
U280 **LEMMINGS II HARD DRIVE INSTALLER** - Put Lemmings 2 on your Hard drive. *REQUIRES 1.5 MEG, NOT A500*
U281 **D-COPY 3.1** - Powerful and professional disk duplication software with a similar performance as X-Copy Pro.
U282 **TERMINUS 2.0** - Rewritten form Jrcomm. The best communications package for users with fast modems.
U283 **LOCKPICK V2** - Removes copy protection from roughly 450 commercial titles.
U290 **CHARACTER GENERATOR** - For Advanced Dungeons & Dragons players.
U291 **RELOKICK v1.4** - New version of this A500+, A600 and A1200 downgrader to Kickstart 1.3. Helps make many A500 only titles work on your machine.
U293 **PARBENCH** - Link up two Amigas, or Amiga to CDTV for communicationg between them or file transfers.
U294 **POOLS TOOLS** - Comprehensic Pools predictor.
U297 **LISTER 2.1** - Disk magazine creator.

DEMOS

D148 **STATE OF THE ART** - By Space Balls. *A1200 USERS, DISABLE CPU CACHES*
D161 **FAIRLIGHT 242** - 29 meg of graphics crammed on a single disk. Stunning routines.
D159 **LETHAL EXIT** - *A1200 ONLY*
D157 **DESTINATION UNKNOWN** - The best AGA vector demo yet! *A1200 ONLY*
M127/128 (2 DISKS) **JESUS ON E'S** - 27 minutes of Rave. *REQUIRES 2 DISK DRIVES*
D160 **TECHNO TRACKS II** - Rave demo from the United States. *1200 ONLY*
S93 **REVELATIONS** - Stunning slideshow.
S94 **NIGEL MANSELL AGA SLIDESHOW** - Nigel in his Formula One days. *A1200 ONLY*
S91 **MANGA** - Japanese cartoon slideshow.
M139 **CLASSIX 2** - Classical music from Bach, Handel and Pachelbel.
A151 **THE LEMMING SHOW** - Starring Suicide man. Not for the squeamish.*REQUIRES 1.5 MEG*
D156 **JETSET** - Funky.
D153 **RETINA** - Flashy demo. *1200 ONLY*
D145 **PIECE OF MIND** - Star Trek spoof.
M134 **RHAPSODY IN BLUE** - Jazz.
M135/136 (2 DISKS) **NUTCRACKER SUITE** - Makes a welcome change.
M130-134 (4 DISKS) **A TO Z OF C64 TUNES** - Hundreds of classic C64 tunes packed onto 4 disks. Great value.
M125 **MUMBO JUMBO** - Very lively.

FINAL FRONTIER ISSUE # 5

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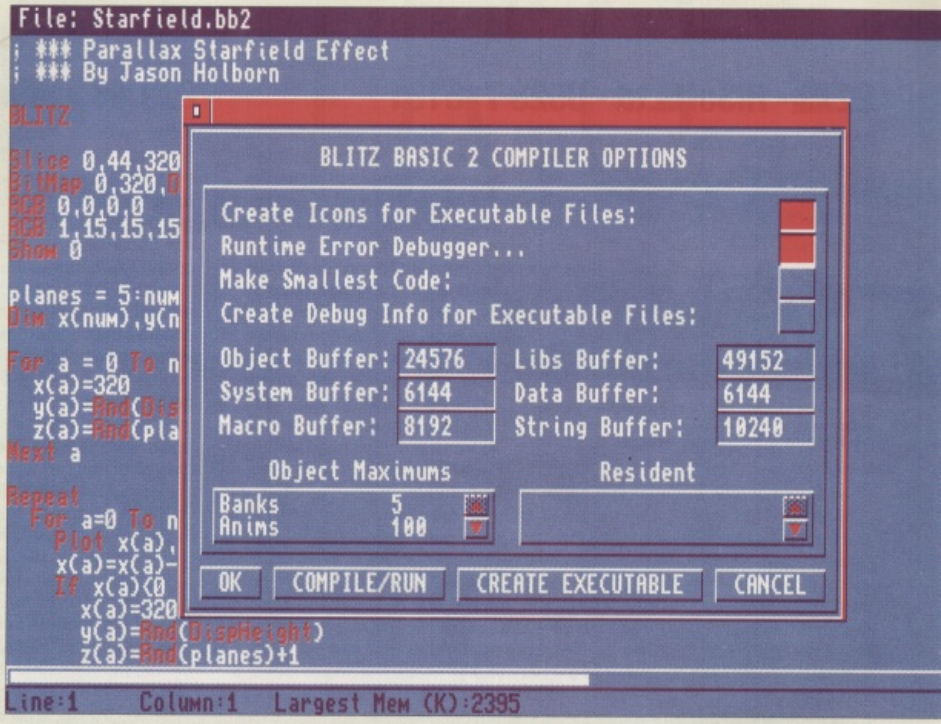
Blitz Basic 2

£69.95 - Acid Software - 071 482 4066

Hot on the heels of AMOS comes Blitz Basic 2, a new kid on the block that offers features similar to AMOS but with the promise of faster code execution speeds and a compiler built in as standard. Designed and written by New Zealand software team Acid Software, Blitz Basic 2 also supports the Amiga's new AGA chip set, making it the first Amiga programming language that allows you to take full advantage of the extended colour palette and screen modes offered on A1200 and A4000 Amigas.

Blitz' command set is certainly impressive. Not only does it deliver the AMOS-like ability to directly access the Amiga's custom hardware, but Blitz also fully supports the Amiga's 'Intuition' windowing environment, the foundations of Workbench. As a result, you can not only write programs that can make use of super-smooth scrolling, high speed sprites and bobs and interrupt-driven music, but you can also open screens and windows on the Amiga's Workbench complete with a full array of different gadget types and pull down menus. This is perhaps the main area where Blitz scores over AMOS – unless Europress released their promised Intuition language extension, Blitz will continue to hold this ace card.

Another big advantage Blitz has over AMOS is the fact that it comes as standard with a full-blown compiler that transforms your Blitz creations into true machine code programs. The resulting 'object' files run at break-neck speeds (faster even than 'C'!). Blitz is an impressive BASIC language that runs rings around most of the competition. Does it beat AMOS, however? You'll have to read the box elsewhere on this page to find out!



The greatest challenge to AMOS' supremacy has come from Acid Software's Blitz Basic 2, an amazingly fast language geared heavily towards games programming.

84%

GFA Basic 3.5

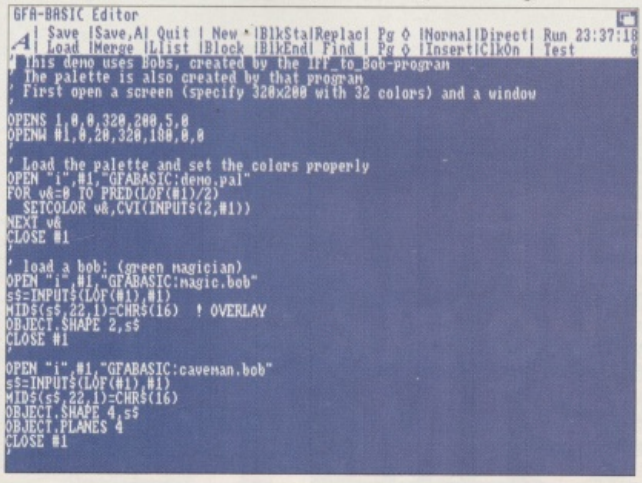
£49.95 - GFA Data Media (UK) Ltd - 0734 794941

GFA Data Media's Basic interpreter system is another one of the old guard that have been floating around for more years than most of us can remember. Originally launched to critical acclaim on the Atari ST, GFA Basic was ported across to the Amiga and tarted up considerably. Although the original Amiga release of GFA Basic was shakey to say the least (it would crash every five minutes or so), GFA quickly ironed out the bugs and GFA Basic is now one of the most stable operating-system-friendly BASIC languages available for the Amiga.

The latest version of GFA Basic, version 3.5, offers a powerful instruction set that includes all the constructs that you'd expect from a decent structured programming language plus a few tricks of its own including powerful matrix transformation commands (ideal for working with 3D graphics). Although the basic GFA system does not include a compiler, GFA also sell a compiler for an extra £29.95 that allows you to produce programs that run independently of the interpreter. This obviously adds to the price making GFA somewhat pricey when compared to more modern rivals such as Blitz Basic.

GFA Basic certainly isn't ideal for games programming, but for programming applications its still a worthy contender. Due to its age, both the interpreter and compiler can be picked up for peanuts these days so it may still be worth considering if you're not interested in writing high speed arcade games.

76%


GFA-BASIC Editor
' This demo uses Bobs, created by the IFF_to_Bob-program
' The palette is also created by that program
' First open a screen (specify 320x200 with 32 colors) and a window
' Load the palette and set the colors properly
' Load a bob: (green magician)
' Load another bob: (caveman)

GFA Basic may have since been surpassed by the likes of Blitz Basic and AMOS, but it still provides a good stable development system for writing applications and 'serious' programs.

Amos Vs Blitz

Much has been written extolling the virtues of Acid's new Blitz Basic 2, but its arrival has only made the process of choosing an Amiga BASIC programming language that bit simpler. For users wishing to write fast arcade games, GFA Basic and HiSoft BASIC are definately out of the running, which leaves you to choose between Blitz and AMOS Professional, a choice which is certainly difficult to make.

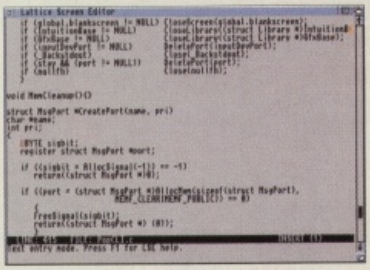
Both Blitz and AMOS allow direct access to the Amiga's custom video and sound hardware, but Blitz has the added advantage of also fully supporting both Intuition and the new AGA chip set. Europress originally claimed that an AGA language extension would be released for AMOS, but recent events have made the chances of this appearing somewhat remote. Add to this the fact that Blitz also comes as standard with a compiler (AMOS programmers need to pay an extra £35 for this!) and it seems clear that Blitz is the winner. Or is it?

It's certainly true that Blitz is potentially more powerful than AMOS, but both have their strengths and weaknesses. As anyone who has attempted to program in Blitz will tell you, it's not a language for the faint-hearted. Even if you read through the manuals from cover to cover, Blitz still requires a fair knowledge of programming concepts and the Amiga's hardware to get the best from it. AMOS, on the other hand, is a far more accessible language that can be learnt fairly easily. What's more, the brilliant AMOS manuals make this process even easier. AMOS code may not run quite as fast, but program it correctly and there's very little that Blitz can do that AMOS can't.

At the end of the day, the decision is down to you. If you rate yourself as an experienced coder and you enjoy tackling difficult concepts, then Blitz is for you. For we mear mortals, however, AMOS is still the choice.

LATTICE/SAS C 6.3

£279 - HiSoft Ltd - 0525 718181



In a market virtually devoid of competition, Lattice continue to update their successful C compiler. This latest release is the most powerful yet.

If you're writing applications software, then 'C' is considered the choice language for accessing the Amiga's operating system routines. Most of the operating system is written in C itself, so it's not hard to see (pardon the pun) why C compilers have become so popular. Surprisingly, however, very few commercial 'C' compilers are actually available – the only two that are still available is Lattice's excellent offering (reviewed here) and Aztec C, a compiler system that never quite made it across the pond from its home in the United States.

The price of Lattice C may seem rather steep, but when you receive the package it's easy to see where all the money has gone. Bundled with the program are two massive manuals that cover just about everything you could possibly wish to know about Lattice C. The compiler system itself is pretty complete two - eveything you need to edit, compile and debug your C programs is there. Lattice include their own 'LSE' screen editor which attempts to make the compilation process as integrated as possible. You can edit your source code and then compile it to memory or disk without having to leave LSE. Debugging is particularly well handled too thanks to 'CodeProbe', a symbolic debugger that allows you to step through your code one instruction at a time.

Lattice C 6.0 is rather pricey when you consider that there are PD C compilers available, but – as the old motto goes – you get what you pay for. It's undoubtedly the most complete and most professional C compiler system available for the Amiga. Highly recommended.

74%

HiSpeed Pascal

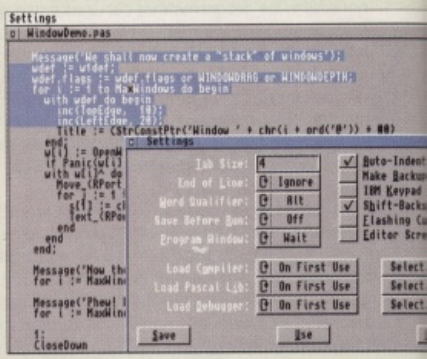
£99.95 - HiSoft Ltd - 0525 718181

HiSoft have a reputation for producing market-leading programming language compilers and HiSpeed Pascal is certainly no exception. Then again, becoming the market leader was hardly a difficult task – apart from Metacomco's rather geriatric 'MCC Pascal' package, HiSpeed Pascal is the only Pascal compiler available for the Amiga. That's not to say that HiSpeed Pascal isn't any good, however. Far from it. Offering full compatibility with TurboPascal 5.0 on the PC, HiSpeed Pascal is a force to be reckoned with.

Like HiSoft's other programming languages, HiSpeed Pascal is based around an integrated programming environment that allows you to edit, compile and debug your Pascal programs from within a single program. The editor is a sophisticated multi-window affair that allows you to edit more than one source file at any one time. What's more, you don't have to enter all your program code in one go – just like TurboPascal 5.0 on the PC, you can write code in a 'modular' form so that each module is compiled separately and the package's linker simply pieces them all together. This allows you to concentrate on individual routines without getting bogged down in code.

Pascal is hardly the number one choice for most Amiga users and HiSoft make no attempt to teach the language in its well-written users manual. If you're new to Pascal, however, then there are plenty of books available on the subject so learning to program in Pascal shouldn't be too painful. Whether you're a professional Pascal programmer or just getting started, HiSpeed Pascal is an excellent programming language that deserves to do well.

83%



Pascal may not be everyone's cup of tea, but HiSoft have certainly done a damned good job of bringing it to the Amiga!

DEVPAC 3

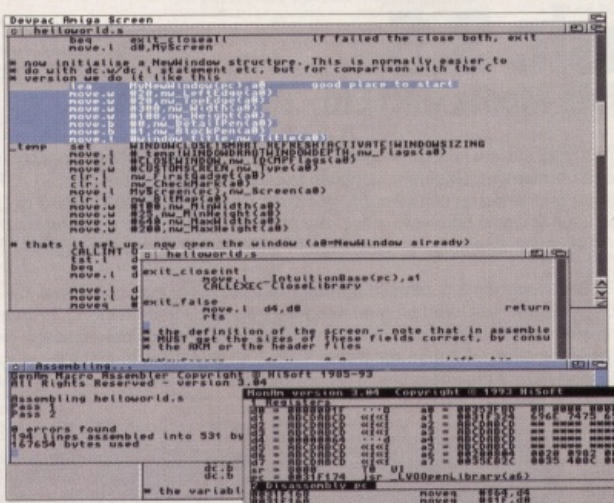
£69.95 - HiSoft - 0525 718181

Ask any professional Amiga programmer what the best Amiga assembler is and chances are that they'll say Devpac. During the many years that Devpac has been available, HiSoft have enhanced it immeasurably and the latest release, Devpac version 3, is even better. Even in these days of PC-based PDS and Snasms that allow you to assemble your code down a cable directly into the host machine, Devpac 3 still has a formiddable following in professional programming circles. Top programmers like DMA Design's Dave Jones (the author of *Lemmings*) and Jez San (*StarGlider*, etc) still swear by Devpac.

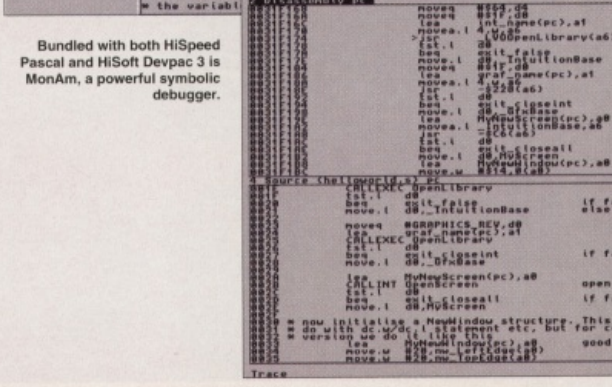
Just like HiSoft's other great programming language, HiSpeed Pascal, Devpac is based around a fully integrated programming environment that allows you to edit your assembly programs, assemble them both to memory and to disk and debug them without leaving the comfort of HiSoft's well-designed Devpac front end. The assembler itself is a beast of a program that is possibly the fastest assembler available on the market (yes, it's even faster than ArgAsm!). It can produce code that is fully compatible with the full range of Motorola processors and you can even optimise your code for the 68040.

HiSoft's powerful MonAm debugger is an absolute joy to use. Just like the version of MonAm bundled with HiSpeed Pascal, MonAm supports full source code level debugging and you can carry out a full range of operations including setting break-points, view and modify both memory and the processor's own registers and a whole lot more besides. In all, Devpac 3 still remains the Amiga's number one assembler.

92%



Even in the face of stiff competition, HiSoft's Devpac 3 still remains the number one Amiga assembler.



Bundled with both HiSpeed Pascal and HiSoft Devpac 3 is MonAm, a powerful symbolic debugger.

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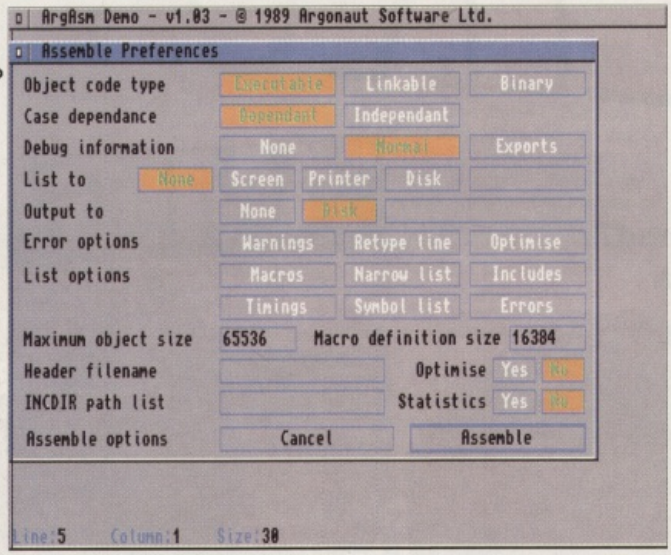
ARGASM

£59.95 - Argonaut Software - 081 200 5777



Jez San isn't just a damned fine games programmer – he knows how to write a pretty decent Amiga assembler too!

Also worth a mention is Argonaut Software's ArgAsm, a combined editor/assembler combination written by Jez San, possibly one of the best known Amiga games programmers. Originally designed as an in-house tool for use by Argonaut's own team of games programmers, ArgAsm's main claim to fame is its impressive assembly speeds. Although Devpac 3 has now caught up, ArgAsm is still faster in some situations.

There are a number of problems with ArgAsm, however, not least of which is the fact that Argonaut no longer support the product. Due to its hardware-level games programming orientated design, ArgAsm doesn't include a debugger such as the MonAm tool bundled with Devpac. As Jez San rightly points out, games software usually kicks out the operating system and so programs like MonAm will not run. For the rest of us, however, this is one omission that severely limits ArgAsm's usefulness. Another major problem with ArgAsm is its reliability – crashes are a regular (and annoying) occurance. Unless Argonaut sort out these problems (which is unlikely), ArgAsm is just too limited to be useful.

46%

MACRO68

£130 - Helios Software - 0623 554828

A brand new arrival on the assembler scene is Helios Software's Macro68, an Amiga assembler that supports the full range of Motorola processors. Written by DigiSoft, Macro68 claims to be the fastest Amiga assembler bar none. In tests this proves not to be entirely true however – Argonaut's ArgAsm and (in certain circumstances) HiSoft's Devpac 3 still hold that crown. The reason for Macro68's impressive turn of speed can be credited to the fact that it is what is known as a 'single pass assembler'. That is, it scans and assembles source files in one go rather than the 'two pass' approach adopted by most other Amiga assemblers.

Macro68 certanly isn't a jack of all trades like Devpac, however. Even DigiSoft freely admit that in order to get Macro68 to do anything even remotely interesting you'll need to get your hands on a text editor (Workbench's 'Ed' will do the job, albiet slowly) and – more importantly – a debugger. This makes Macro68 seem rather expensive when compared to the likes of both ArgAsm and Devpac. In its favour, however, is the fact that Macro68 can be controlled entirely via ARexx which essentially means that you could control the assembler completely from within a text editor like CygnusSoft's *Cygnus Ed 2*.

Macro68 is a powerful assembler that gets the job done but at the end of the day it's the price that is the deciding factor. Devpac 3 is considerably cheaper and you also get the added benefit of an integrated text editor/assembler/debugger all in one package.

63%

Include files

The Amiga's operating system has received more than its fair share of flack over the years but there's no escaping the fact that – from a programmer's point of view at least - it's very powerful indeed. The designers of the OS were a clever lot – all the code required to perform just about any operating system level task (opening a window, accessing the sound chips, creating 'child' processes etc) have been collected together into what the techies call 'libraries'. Many of these libraries are built into the Amiga's ROM whereas others are loaded from the 'LIBS:' directory on your Workbench disk. They contain whole collections of individual routines that give the programmer direct access to the operating system's many resources.

In order to access these routines, however, you must have Commodore's 'Include' files. These include files contain hundreds of definitions that tell your program how to access the routines buried within the Amiga's ROM. Virtually all commercial programming languages come complete with the neccessary include files for that particular language but beware when buying PD languages - because they include files are the copyrighted property of Commodore, you have to pay for these separately. They cost just £25 and are available direct from Commodore.

Other languages

If you want to be a bit different from your friends then you don't have to go for 'established' programming languages like C, Pascal and Assembler. Here's a quick round-up of other more unusual languages on offer.

Amiga Logo
£49.95 Commodore UK Ltd

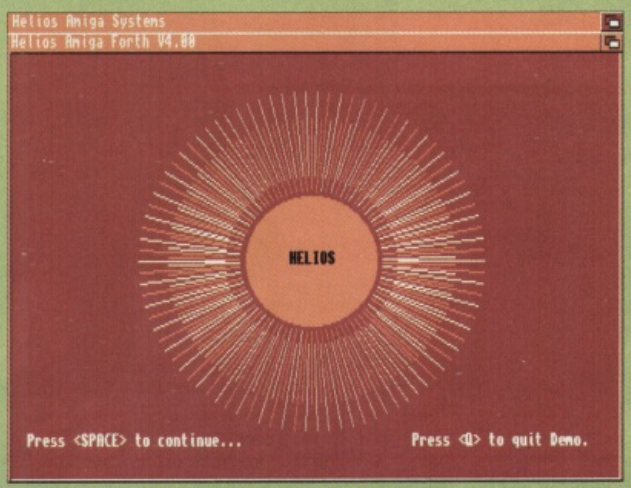
Logo was invented as a language for use within schools for teaching school children the fundamentals of computer programming. Commodore's Logo language was written to help the Amiga break into this lucrative market. It fully supports the full Logo instruction set including those infamous 'turtle' graphics.

Helios Forth
£120 Helios Software

Forth may not be the choice for most Amiga programmers, but Helios have done a fine job of bringing this unusual language to the Amiga. Helios Forth is a powerful integrated Forth programming system that includes everything you need to write Forth programs. Although it does directly support Commodore's own Include files, Helios include a subset that gives you access to the more common routines through its own libraries. Definitely not a language for the beginner, however.

The Director 2.0
£99.99 Silica Systems

Not quite a full-blown programming language, the Director is aimed more at the video market. It's a powerful scripting language that allows you to write programs with a definite graphic bias. The Director fully supports static IFF files, animations and sound samples. Originally used by Amiga animation guru Eric Shwartz, The Director is still worth investigating.



Helios Software are rapidly becoming a major force in the Amiga programming languages market. Not content with releasing two tools for assembler programmers, they were also responsible for bringing the Forth language to the Amiga.

AMOS PRO COMPILER

£34.95 Europress Software

If you own any one of the three different versions of AMOS (Easy AMOS, AMOS 'Classic' or even AMOS Professional) then you need the AMOS Professional Compiler. Although its name would suggest that it is aimed at AMOS Pro owners, the AMOS Pro Compiler will happily compile programs written in any of these three programming systems. The compiler does come into its own, however, when used with AMOS Pro. Not only can you compile code from within the AMOS Pro Editor but you can even run it too – truly an integrated programming environment.

Although the speed increase in your code will depend entirely upon the type of program you've written, virtually all AMOS programs benefit from being compiled. If you've written a program that performs a lot of heavy calculations, the compiler will turbo-charge it beyond belief. A must for all AMOS programmers.

If you own AMOS then you have to buy the AMOS Professional Compiler. It'll turn any AMOS program into super-fast machine code!

Other Programming tools

ReSOURCE
£130 Helios Software

If you've written a program in assembler and you just happen to lose your source code there's usually no way of converting your assembled code back to source code. That is, unless you happen to own Helios Software's 'ReSOURCE', a powerful disassembler that converts assembled code into source code. ReSOURCE is pretty intelligent too – if your program makes use of the routines built into the Amiga's ROM, it will automatically convert those unfriendly library offset values into the appropriate library routine name. If, for example, your program opened a library using the Exec routine 'OpenLibrary', instead of seeing a value of $228 displayed within your source code, ReSOURCE would substitute it for _LVOOpenLibrary. Although rather pricey, ReSOURCE is a must for all serious Amiga assembly language programmers.

Craft
£24.95 Black Legend Software

One of the most powerful features of AMOS is the way its instruction set can easily be extended using what are known as language 'extensions'. The latest language extension to be launched is Craft (short for Colour, Requesters, Audio, Fractals and Text). Craft adds over 160 new commands to AMOS that give the AMOS programmer the ability to generate fractal graphics with just a single command. Craft also gives the programmer a number of handy requesters such as a file and colour requester, all of which can be used within your own programs with ease. The full range of functions available are too numerous to mention – suffice to say that it's just the sort of thing all AMOS owners should buy.

Turbo 1.9
£FREE! Public Domain

It's unusual to find an AMOS extension that can be bought for the price of a disk but this is exactly what we have in the form of Turbo. The latest release delivers a whole range of new commands that either extend AMOS or provide meaner and leaner versions of existing AMOS commands. Amongst Turbo's replacement commands are a whole host of new bob and icon handling instructions that can draw bobs onto the screen three times faster than even compiled AMOS programs. Turbo also offers a handy 'Stars' command that creates parallax starfields with up to 256 stars using 'virtual' hardware sprites. A definite must for all AMOS programmers.

Features table

Product	Supplier	Price	Language	Compiler	OS Support	Hardware Support	AGA	Debugger
HiSoft Basic	HiSoft	£49.95	BASIC	Yes	Yes	No	No	No
GFA Basic	GFA Data Media	£49.95	BASIC	Optional	Yes	No	No	No
AMOS Professional	Europress	£49.95	BASIC	Optional	No	Yes	No	Yes
Blitz Basic	Acid Software	£69.95	BASIC	Yes	Yes	Yes	Yes	Yes
Lattice C 6.0	HiSoft	£279	C	Yss	Yes	No	Yes	Yes
HiSpeed Pascal	HiSoft	£99.95	Pascal	Yes	Yes	No	Yes	Yes
Devpac 3.0	HiSoft	£69.95	Assembly	Assembler	Yes	Yes	Yes	Yes
ArgAsm	Argonaut	£59.95	Assembly	Assembler	Yes	Yes	Yes	No
Macro68	Helios	£130	Assembly	Assembler	Yes	Yes	Yes	No
Helios Forth	Helios	£120	Forth	Yes	Psuedo	No	No	No
Amiga Logo	Commodore UK	£49.95	Logo	No	No	No	No	No
The Director 2.0	Silica	£99.99	Custom	Yes	No	No	No	No

SOFTWARE DEMON

39/40 QUEENS CHAMBERS, QUEENS STREET, PENZANCE, CORNWALL, TR18 4HB

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Access VISA

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33MHz 68882 (WITH CRYSTAL)	£99
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single sided SIMMS module for A4000

1Mb RAM	£39
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Our accelerators are produced for the A1200 by GVP, a watch word in quality and reliability. Both boards are user fittable via the trapdoor so as to maintain your warranty.

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0Mb/NO FPU	£179
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0Mb/NO FPU	£269
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33MHz 68882 FPU	£69
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SOFTWARE

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SCENERY ANIMATOR 4	£54.99
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THE AMIGA IN BUSINESS

The Amiga might be seen as nothing more than a toy by those who don't know any better, but the truth of the matter is that it has a great selection of software to help you run a business, too.

Of course, you probably already use word processors and databases at home, but there's also plenty of packages which will really improve your business performance, handling everything from stock control and invoicing to mail outs and electronic communication.

WORD PROCESSORS

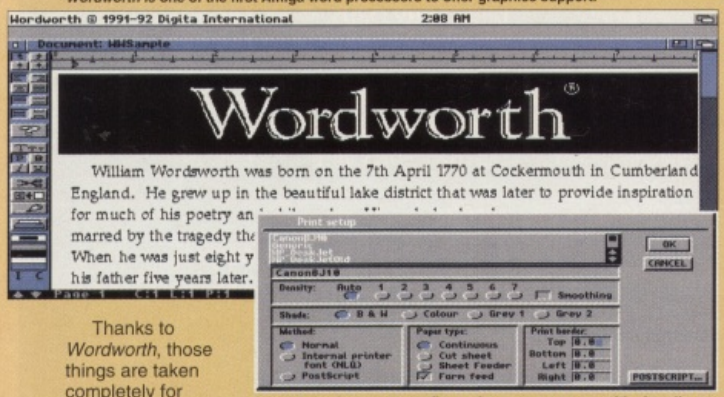
WORDWORTH 2 AGA

£129.99 - DIGITA - 0395 270273

It seems that the traditional definition of a word processor has been all but forgotten. *Wordworth* is one of the first of the new breed.

Times were when a word processor was simply a piece of software for editing text, and printing it in a quick and tidy fashion. Most packages had some sort of dictionary to check the spelling of your documents, and if you were really lucky, you might even find a Thesaurus to help you keep your writing creative.

Wordworth is one of the first Amiga word processors to offer graphics support.


Wordworth © 1991-92 Digita International
2:08 AM
Wordworth
William Wordsworth was born on the 7th April 1770 at Cockermouth in Cumberland
England. He grew up in the beautiful lake district that was later to provide inspiration
for much of his poetry an
marred by the tragedy tha
When he was just eight y
his father five years later.
Print setup
CanonBJ10
OK
CANCEL
Smoothing
POSTSCRIPT...

It is extremely easy to configure the program to run with virtually any printer and this makes it a good choice for beginners

Thanks to *Wordworth*, those things are taken completely for granted, and the package includes such features as scalable fonts, graphics support, drawing tools and support for any built-in typefaces your printer may have.

In fact, it's ability to configure itself exactly to whatever printer you own with a minimum of effort on your behalf is *Wordworth*'s greatest strength. By simply following a few on-screen prompts, the program is ready to use with no complicated printer preferences to be set up.

Not only does it let you use your printer's fonts, but if you're not outputting to a postscript device you can also use scalable Compugraphic fonts such as those used by Workbench 2.0 machines.

This means that you have access to literally thousands of different typefaces, all of which will print at the very maximum quality your printer is capable of.

It can import bit-mapped and Encapsulated Postscript graphics, although the latter cannot be viewed on the screen.

The program comes with tons of clip art so that you can give your documents more punch, and it's also supplied with17 fonts.

CONCLUSION

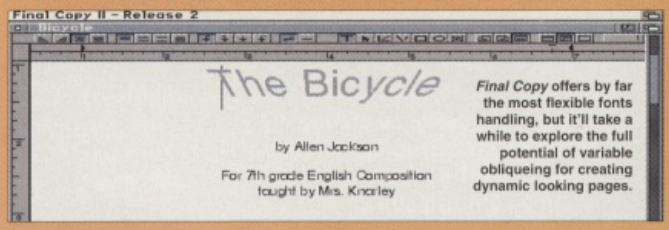
Wordworth is one of those programs that you tend to love or hate. It comes with more options than you can wave a stick at, and it's extremely unlikely that you're ever going to use many of them. Its font and graphics printing seem a little quirky, but program's of this complexity inevitably take time to learn. It can import and export text from many other word processors including *Word Perfect*. A very solid program. Check the price with Digita before you buy because they have been known to sell the program for a substantial discount.

Requires Kickstart 1.3, 1.5 megs of RAM and a hard drive or two floppies.

84%

FINAL COPY 2

£79.95 - SOFTWOOD EUROPE - 0773 836781

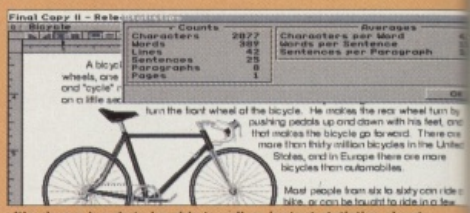

Final Copy II - Release 2
The Bicycle
by Allen Jackson
For 7th grade English Composition
taught by Mrs. Knorley
Final Copy offers by far the most flexible fonts handling, but it'll take a while to explore the full potential of variable obliqueing for creating dynamic looking pages.

Wordworth and *Final Copy* are arch rivals, however with release 2, *Final Copy* gives users a clear choice of options when deciding which package to buy.

The publishers of both programs have recognised the importance of high quality text printing, but whilst *Wordworth* uses bit-mapped screen fonts, and even supports them for printing, *FC2* exclusively uses scalable fonts both on-screen and when printing. However, to compensate for the slight lack of flexibility, *Final Copy* supports Postscript fonts, and will even download new ones to your postscript printer in needed.

In fact its font handling is more flexible than *Wordworth* although Softwood's insistence on taking the typographically correct, but inconvenient route, to typefaces means that you must load a separate typeface if you want an italic version of the Nimbus Q or Softfaces included with the program. *Wordworth* simply performs the necessary operation with no effort by the user. Yet again, *Final Copy* does offer an additional feature in the form of its variable obliqueing command which slants your text by a user-definable amount.

If you're working with small text or graphics, the program's variable magnify feature is also handy.


Word Counts
Characters 2077
Words 387
Lines 42
Sentences 25
Paragraphs 8
Pages 1
Averages
Characters per Word
Words per Sentence
Sentences per Paragraph
turn the front wheel of the bicycle. He makes the rear wheel turn by
pushing pedals up and down with his feet, and
that makes the bicycle go forward. There are
more than thirty million bicycles in the United
States, and in Europe there are more
bicycles than automobiles.
Most people from six to sixty can ride a
bike, or can be taught to ride in a few

It's always handy to be able to call up instant statistics about your document, and all the programs here offer a similar feature.

Although the program doesn't come with the friendly printer configuration program that *Wordworth* boasts, surprisingly it is actually more flexible when it comes to output. For starters, rescaled graphics are still printed at the best possible quality, whereas *Wordworth* unfortunately degrades images that are shrunk, and increases the jaggies if they're enlarged. Also, strangely enough, *Wordworth* only prints as many colours as the current the current screen mode permits, whereas *Final Copy* will use the full palette of the graphic image, simply using the screen image as a representation.

CONCLUSION

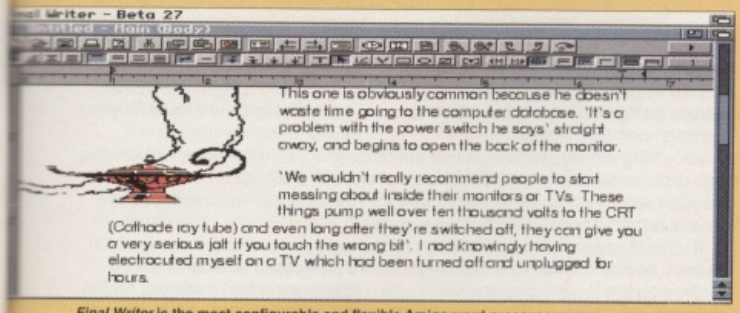
Final Copy 2 seems to conform much more closely to the Amiga design protocols, and this gives it a very polished appearance. It's a pity that it can't import and export text from other word processors as this is important to professional users, but for home use I suppose ASCII import and export is adequate. The print quality is excellent and at the price *Final Copy 2* represents reasonable value. If you need lots of text editing and formatting options, then this is a good starting place, but if they're not so important as powerful graphics handling and page design tools, then take a good look at *Pagesetter 3*.

Requires Kickstart 1.3, 1 meg of RAM and a hard drive or two floppies.

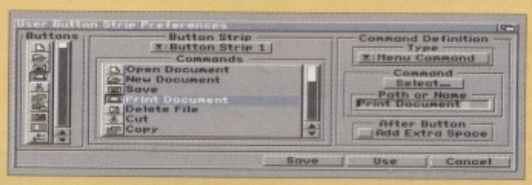
85%

FINAL WRITER

£129.99 - SOFTWOOD EUROPE - 0773 836781


Writer - Beta 27
This one is obviously common because he doesn't waste time going to the computer database. 'It's a problem with the power switch he says' straight away, and begins to open the back of the monitor.
'We wouldn't really recommend people to start messing about inside their monitors or TVs. These things pump well over ten thousand volts to the CRT (Cathode ray tube) and even long after they're switched off, they can give you a very serious jolt if you touch the wrong bit'. I nod knowingly having electrocuted myself on a TV which had been turned off and unplugged for hours.

Final Writer is the most configurable and flexible Amiga word processor ever.



The program lets you define your own buttons so that often used options, or frequently repeated actions can be reduced to a single click.

When it comes to flexibility, they simply don't come any more flexible than *Final Writer*.

Designing the 'perfect' word processor is an extremely difficult, if not impossible task. The trouble is, everyone has a different idea about what makes a good package; some might say fonts, whilst others prefer editing options, whilst still others feel that graphic handling is crucial.

Softwood have realised this problem, and whilst they don't claim that *Final Writer* is by any means perfect, they have adopted a clever approach to the problem. What they've done is give the user a number of definable buttons and menus, and what these do is entirely up to you. Although these buttons work in much the same way as the Genies which caused such a sensation when they appeared in *Professional Page*, you don't need a knowledge of ARexx in order to use them.

Final Writer is essentially *Final Copy 3*, sharing many features of the earlier programs, and enhancements which are direct evolutions of options in *Final Copy 2*. It's graphics handling for example, is even more flexible, and you can draw and rotate structured images with ease.

It is perhaps in the area of professional word processing features that *Final Writer* really excels. It's now possible to automatically generate tables of contents, indexes, bibliographies and even tables of illustrations used in your document.

One of many unique features is the program's outline option. This allows you to create headed sections which can be expanded to reveal the full text, or collapsed so that only the headings are visible. This is ideal when you need to plan the way that long or complicated documents should be structured.

In fact, *Final Writer* does treat text differently to its predecessors, allying itself more with desk top publishing programs. Text is entered normally, but is treated as a block, and these blocks can be moved around the page or the document as if they were objects just like a graphic image.

If you're using the program for maths based work, perhaps in conjunction with a database or spreadsheet, its ability to perform maths on columns of numbers is also invaluable, meaning that you don't have to keep swapping programs.

CONCLUSION

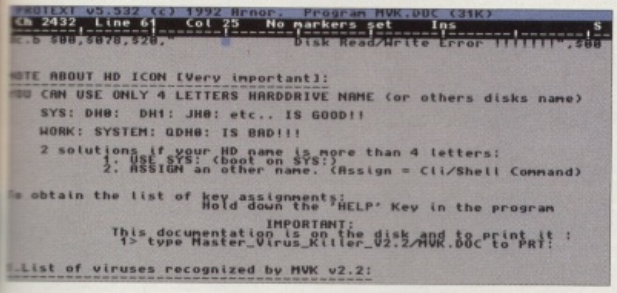
Final Writer is a lovely package, which provides undoubtedly the best output of any Amiga word processor or word publisher, terms which no longer seems adequate to encompass the breadth of its scope. Professional authors, or those who want professional results, will be hard pushed to find another Amiga program with so much to offer.

Requires kickstart 1.3, 1.5 megs of RAM and a hard.

91%

PROTEXT 5

£152.75 - ARNOR - 0733 68909


PROTEXT v5.532 (c) 1992 Arnor. Program MVK.DOC (31K)
Ch 2432 Line 61 Col 25 No markers set Ins
Disk Read/Write Error !!!!!!!.SOB
NOTE ABOUT HD ICON [Very important]:
YOU CAN USE ONLY 4 LETTERS HARDDRIVE NAME (or others disks name)
SYS: DH0: DH1: JH0: etc.. IS GOOD!!
WORK: SYSTEM: QDH0: IS BAD!!!
2 solutions if your HD name is more than 4 letters:
1: Use SYS: (boot on SYS:)
2: ASSIGN an other name. (Assign = Cli/Shell Command)
To obtain the list of key assignments:
Hold down the 'HELP' Key in the program
IMPORTANT:
This documentation is on the disk and to print it :
1> type Master_Virus_Killer_V2.2/MVK.DOC to PRT:
List of viruses recognized by MVK v2.2:

ProText uses a pleasantly uncluttered screen, but hidden away inside its feature packed menus you'll find the sort of options that make it ideal for professional writers.

For serious word processing without the frills, *Protext* is the only option worth considering.

It has none of the graphics or font handling options offered by the other packages reviewed so far, but what it does have are loads of options for the power user; you know, the sort of person who types 10,000 words a week, and knows the keyboard short cuts for every option in *Word Perfect*. Speaking of *Word Perfect*, that program used to be a serious contender for *Protext* but sadly it is no longer being produced on the Amiga.

But back to *Protext;* it naturally contains a spell checker, which can also be used to work out anagrams, and it also supports a gaggle of foreign languages.

Although it doesn't exactly support the range of fonts that the flashier programs do, it nevertheless offers you the greatest control over your printer of all the programs reviewed here because you can actually program your printer with it directly.

It also contains its own built-in macro language, so commonly performed tasks, as well as frequently typed words or phrases, can be reduced to a couple of key presses.

CONCLUSION

Personally, I feel that *Protext*'s user-interface could do with some work, especially the file requesters. However, I know that hundreds of people swear by the program, and couldn't live without it for a second. It's undoubtedly very powerful, but you should try to get a demo before you buy.

Requires any Amiga with 1 meg of RAM.

84%

CYGNUS ED PRO

£99.99 - MERIDIAN DISTRIBUTION - 081 543 3500

When you don't care about the layout of a piece of text as much as its content, and the ease with which it was prepared, maybe *Cygnus* has something to offer you.

Although it claims to be suitable for programmers and writers, I personally prefer a word processor which offers decent text formatting and justification options, as well as a dictionary.

Cygnus Ed offers neither of these options, but it does have bucketloads of features that programmers will appreciate, including a very easy to use Macro facility and powerful search and replace options.

It also offers an infinite Undo option which is limited only by the amount of memory you have.

Although I don't program, I often use its column cut option which lets me cut and paste column blocks of text; an option which is quite simply impossible with a word processor.

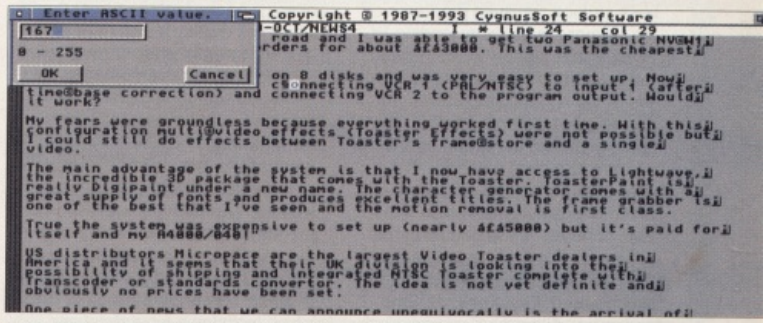
Full Arexx and clipboard support means that you can easily integrate *Cygnus* into your programming environment, patching the program so that it automatically communicates with compilers and the like.

CONCLUSION

Cygnus is not for anyone who likes to be mollycoddled, but for programmers and comms users it is invaluable.

Requires Kickstart 1.3

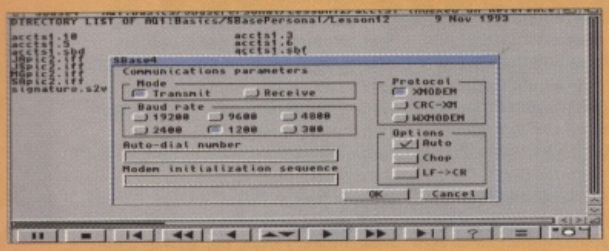
85%


Enter ASCII value.
167
0 - 255
OK
Cancel
Copyright © 1987-1993 CygnusSoft Software
time@base correction) and
it work?
My fears were groundless because everything worked first time. With this
configuration multi@video effects (Toaster Effects) were not possible but
I could still do effects between Toaster's frame@store and a single
video.
The main advantage of the system is that I now have access to lightwave,
the incredible 3D package that comes with the Toaster. ToasterPaint is
really Digipaint under a new name. The character generator comes with a
great supply of fonts and produces excellent titles. The frame grabber is
one of the best that I've seen and the motion removal is first class.
True the system was expensive to set up (nearly ££5000) but it's paid for
itself and my A4000/040!
US distributors Micropace are the largest Video Toaster dealers in
America and it seems that their UK division is looking into the
possibility of shipping and integrated NTSC Toaster complete with
Transcoder or standards convertor. The idea is not yet definite and
obviously no prices have been set.

The program comes with lots of useful technical features including the option to enter characters using their ASCII values.

SBASE PERSONAL 4

£149.95 - MERIDIAN DISTRIBUTION - 081 543 3500



Although it costs considerably less than its prestigious relative, SBase Personal still offers comms support so that you can link your database up to others by phone.

If you need the user-friendliness of *SBase*, but not all of its features, then *SBase Personal* is aimed at you.

The program uses the same basic interface, complete with video style controls, however options such the Database Management Language have been removed.

For the beginner this is no problem at all, because chances are you wouldn't have known that such features were possible, much less that you needed them, or could have utilised them.

Unlike *SBase Pro*, which comes in a large box the size of a 48 bar packet of Weetabix, *SBase Personal* is supplied in more modest packaging. The reason I mention this, is because easy to use or not, it does tend to be just the slightest tad off-putting when you see program manuals that dwarf the Encyclopedia Britannica falling out of the box! Fortunately *SBase* only requires you to read a single (admittedly chunky) manual.

CONCLUSION

If your business is small enough to worry about the expense of *SBase Pro*, then you didn't need it in the first place and *SBase Personal* is ideal for you. It can handle databases containing up to 16 million records and up to 17 gigabytes (17,000 megabytes) in size. I seriously doubt that even British Telecom's national directory is that large! A first class program, but not cheap by any means.

Requires AmigaDOS 2.0 or higher and 1 meg RAM

83%

PRODATA

£99.87 - ARNOR - 0733 68909

Although it's been around for a while now, *Prodata* offers a good reliable text only database, and at a price that doesn't need your bank manager's written approval in triplicate.

Like *Protext*, *Prodata* uses a rather spartan command-based interface to get you going, although once you've chosen your initial options it does let you control things via menus.

It's a fairly simply program in that the records of your database may only be text, dates or numbers (including the results of calculations). In most cases this is all you'll ever need because, after all, how often do you need to reference hundreds of pictures or sound samples?

It uses dynamic fields so that each record only occupies as much space in memory and on disk as it needs, rather than a predefined amount of space.

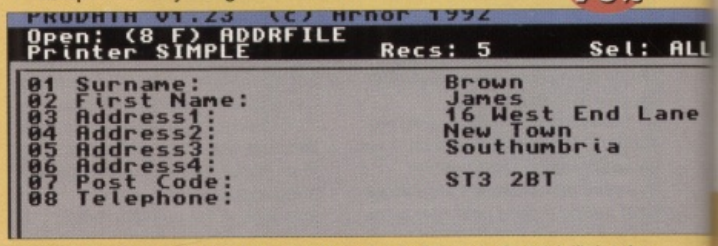
Prodata is a relational system and with a maximum of 300 fields per record provides more than enough scope for any home or small office database that I can imagine.

CONCLUSION

Not as flashy or powerful as Oxxi's databases, but a lot cheaper. A surprisingly robust little program, which will require you to read a small and well written but uninspired manual to get going.

Compatible: Any Amiga.

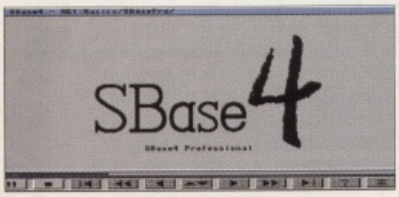
70%



Although it doesn't support the variety of data types that the *SBases* do, *Prodata* is likely to be adequate for address data and that kind of thing.

SBASE PROFESSIONAL 4

£299.95 - MERIDIAN DISTRIBUTION - 081 543 3500



We live in an age where we are required to process ever increasing amounts of information. The ability to manage that information efficiently and quickly can mean the difference between failure and success. *SBase* give you the edge you need.

Database creation and management shouldn't have to require a degree in programming and business studies, yet such programs on the supposedly industry leading PC often require huge efforts to create relatively simple databases. *SBase 4* sticks two fingers up at such complex ways of working, and lets you get straight into the action as it were.

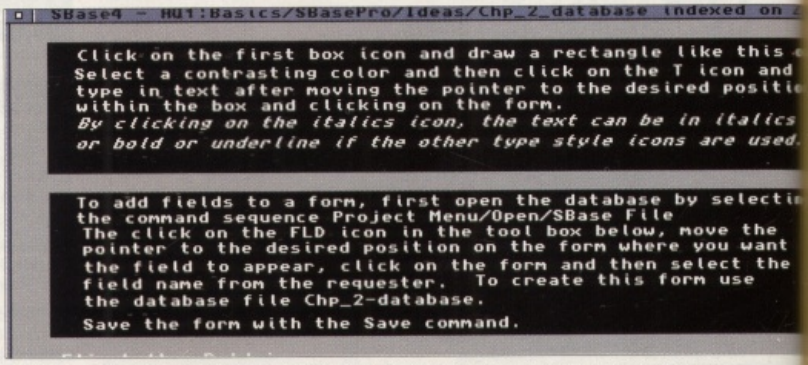
It's a relational database that uses a very graphical user-interface which is closely modelled on VCR style controls. At the bottom of the screen you'll see a number of buttons representing options such as Next Record, Fast Forward, Stop and so on. Although Oxxi constantly compare these buttons to video players, show me the video that lets you jump to the start or end of a tape!

Anyway, *SBase* lets you store a vast selection of different data types including text, numerical data, sound samples, pictures (stored as IFF, PCX or GIF images) and formulae. Its text handling, the most basic requirement of a database, is superb. It can handle single fields up to 4000 characters in length in scrollable boxes.

Once you've defined a database, you can also design forms with which to display or print your data. These forms may include pictures directly, or can incorporate gadgets which will display a picture or replay a sound sample when clicked upon.

The program even offers support for networked computers, as well as modem links to remote terminals. To my knowledge, it's the only Amiga database to include such features.

Although *SBase Pro 4* is powerful when its features are accessed via menus etc, to elicit the true power of the program, you'll want to master the database management language or DML. This is a derivative of Basic which includes a lot of database specific commands. With DML it's possible to create an automated database environment in which the user has to do little more than respond to questions in order to update data.


Click on the first box icon and draw a rectangle like this
Select a contrasting color and then click on the T icon and
type in text after moving the pointer to the desired positi
within the box and clicking on the form.
By clicking on the italics icon, the text can be in italics
or bold or underline if the other type style icons are used.
To add fields to a form, first open the database by selecti
the command sequence Project Menu/Open/SBase File
The click on the FLD icon in the tool box below, move the
pointer to the desired position on the form where you want
the field to appear, click on the form and then select the
field name from the requester. To create this form use
the database file Chp_2-database.
Save the form with the Save command.

The program's video style controls mean that you can negotiate your way around the largest databases quickly and easily.

The program is a relational database and this can sometimes be tricky to understand. However, thanks to the graphical way fields can be represented whilst defining relationships, the whole process is made considerably easier.

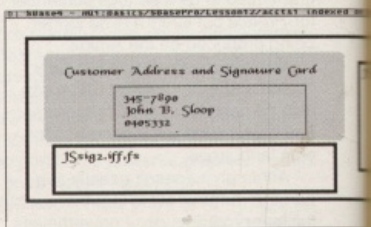
CONCLUSION

SBase Professional 4 is no lightweight either in terms of price or features. To get the most from it, you'll need to invest a fair bit of time. I don't want to beat about the bush; there's simply nothing else on the Amiga that even plays in the same league as this program. If you need to run a business, regardless of its size, this is the program to entrust your data to.

Any Amiga with 1 meg RAM.

91%

Use *SBase Pro*'s form designer to make sure all data is presented in the most effective manner.



INTEROFFICE

£49.99 - KOMPART UK - 0727 868005

A word processor, database and spreadsheet are the most popular business applications, and InterActivision offer all three on disk or CD ROM for less than £50.

The programs were originally released nearly three years ago for £49.95 each. By bundling all three, you get an ideal way of building the foundations for your Amiga office in one go.

InterWord is the biggest of the three programs, both in terms of popularity and design specifications. It's a word processor designed to cater for every taste. It incorporates excellent support for large documents, with features such as automatic spell checking and hyphenation and a comprehensive choice of statistics.

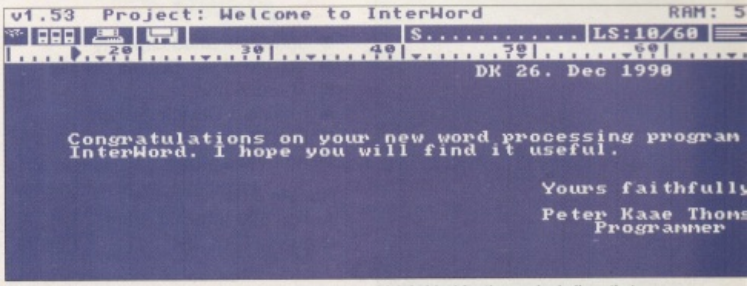
For the less demanding user, *InterWord* will let you use any fonts that your printer may have, switching mid-line if you so desire, it also provides intelligent typeface resizing so that if you use double height characters, for example, it automatically adjusts the number of lines per page.

InterBase is a relational database, and although it's very powerful, the manual is very difficult to understand, especially when you come to the section on defining relationships between various fields.

Nevertheless, it's worth persevering because behind the menus lies a very nice program indeed. It supports a variety of data types including strings of fixed and dynamic length. It can also handle IFF pictures, but not sound samples, although that's unlikely to be much loss to most people.

Defining a database is very easy to do, but woe betide you if you should make a mistake whilst defining your field names, types or sizes because they can't be altered later. This is a real pain, especially when working with fixed length strings.

Once a database is defined, you can also define multiple forms with which to show all or some of its data. If you have defined relationships with other databases, then you can even create forms which display data from two databases at once.



InterWord is a surprisingly powerful word processor, which is ideal for those who believe that graphics should be left to a DTP program.

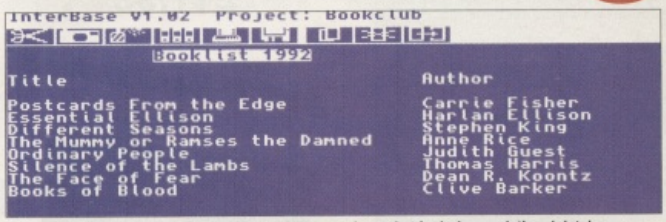
InterSpread is a very powerful spreadsheet which includes its own macro language for automating data processing. It includes all the mathematical functions you'd expect to find in a first class program of its type. It also includes a graph maker which will lets you choose from eight different ways of representing your data.

CONCLUSION

Although they may not look as flashy as other integrated packages, the programs that make up *InterOffice* are very powerful and represent great value for money, especially for the professional user.

Compatible: Any Amiga.

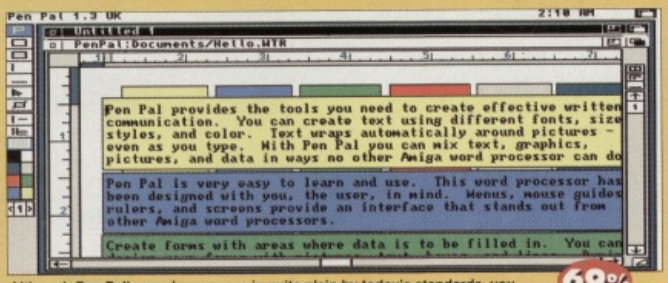
85%



InterOffice is the only integrated office software package that includes a relational database.

PEN PAL

£49.99 - HARWOODS - 0773 836781


Pen Pal 1.3 UK
2:10 AM
Untitled 1
PenPal:Documents/Hello.HYR
Pen Pal provides the tools you need to create effective written communication. You can create text using different fonts, size styles, and color. Text wraps automatically around pictures - even as you type. With Pen Pal you can mix text, graphics, pictures, and data in ways no other Amiga word processor can do
Pen Pal is very easy to learn and use. This word processor has been designed with you, the user, in mind. Menus, mouse guides rulers, and screens provide an interface that stands out from other Amiga word processors.
Create forms with areas where data is to be filled in. You can

69%

Although Pen Pal's word processor is quite plain by today's standards, you can incorporate graphics and line drawings into your documents.

Buying software can be a costly business, but one way to reduce your expenses is to buy integrated packages that incorporate two or more programs. *Pen Pal* gives you a word processor, database and forms manager.

It was one of the earliest word processors that let you incorporate graphics into a document, and long before the term 'hot links' came into vogue, *Pen Pal* was combining three productivity programs together.

The word processor is quite basic, but it does contain a spelling checker, and it also allows you to use any Bit-mapped Amiga fonts that you may own. When it comes to printing, the program can be extremely quirky, especially if you're using graphics. It provides two print methods, one of which uses your printer's fonts whilst the other simply does a screen dump of the current page. The latter option is the only way to incorporate bit-mapped fonts, but the results are very blocky and not at all suitable for professional work. However, using the printer's own fonts can mean that the position of graphics is wrong for the size of fonts your printer uses.

The database is extremely friendly to use and allows you to incorporate IFF pictures as well as 8SVX format sound samples. It can be linked directly to the word processor for creating mail outs, and is simply the easiest way of performing mail merged documents.

CONCLUSION

Pen Pal is starting to show its age, and although it incorporates some nice features, it's not a very good business investment. It's easy enough for kids to understand, and it's a good way of infusing them with enthusiasm to do homework when the finished results will be bright and interesting to look at.

Any Amiga with 1 meg of RAM.

PROPER GRAMMAR 2

£39.95 - SOFTWOOD EUROPE - 0773 836781

It's one thing to own a word processor, but another thing entirely for your words to make sense. Thanks to this program you can bring a tear to your dear old English teacher's eye!

Proper Grammar is designed for anyone who cares about making the right impression; for the sort of person who's not satisfied with simply writing intelligible sentences, but who want them to stand up to scrutiny. So whether you're writing a book or job application, *Proper Grammar* will make sure you get it right.

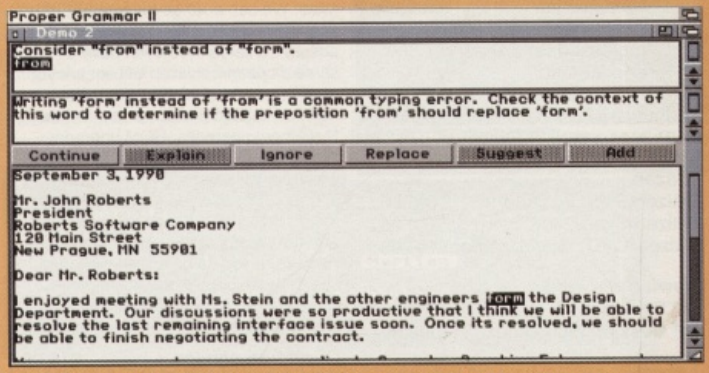
It checks a vast number of things starting with your spelling. It then proceeds to check the context in which words are used; to, too or two and that kind of thing. It also checks punctuation, so if you use a semi colon when a hyphen would have done it will tell you. Similarly it'll also spot those occasions when you use two capital letters to start a word when you only meant to use one. Ironically, it doesn't spot absent capitalization of proper nouns.

CONCLUSION

Proper Grammar is a useful program, but in order to derive the best from it, you need a better than average understanding of English in the first place otherwise you can't select the correct solution when it highlights problems. It can also tend to make your writing a bit dry. Still, it works well enough, in fact too well at times.

Requires an Amiga with 1Mb of RAM and hard drive.

81%


Proper Grammar II
Demo 2
Consider "from" instead of "form".
from
Writing 'form' instead of 'from' is a common typing error. Check the context of this word to determine if the preposition 'from' should replace 'form'.
Continue
Explain
Ignore
Replace
Suggest
Add
September 3, 1990
Mr. John Roberts
President
Roberts Software Company
120 Main Street
New Prague, MN 55901
Dear Mr. Roberts:
I enjoyed meeting with Ms. Stein and the other engineers form the Design Department. Our discussions were so productive that I think we will be able to resolve the last remaining interface issue soon. Once its resolved, we should be able to finish negotiating the contract.

Proper Grammar uses context sensitive analysis to detect spelling and grammar mistakes.

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Speed Mouse

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Paint and animate in 262,000 colours. Developed specifically for the Commodore A1200 and A4000, takes full advantage of the new AGA chip set. Metamorphosis, instantly transform the shape and image of one brush into any other brush, HAM support, Paint stencil mode, Translucency and tinting features for special effects. Requires 2Mb RAM, kickstart 2.04 or greater

Falcon 030

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MINI OFFICE

£59.99 - EUROPRESS SOFTWARE - 0625 859444

If you're relatively new to computing, the way a program handles is probably more important to you than the features it offers. *Mini Office* looks slick and feels great.

It incorporates a word processor, database, spreadsheet and disk utility tool.

As with all of the programs, the word processor looks fantastic, although being written in AMOS means that it won't multi-task, which is a serious limitation in my estimation.

Ignoring that fact, it really is a very attractive piece of software, all be it a simplistic one. Sure it has a spell checker and you can even incorporate graphics and insert mail merged data, but that's pretty much it. For writing letters or doing homework, you don't need much more, but that's just as well.

The database, too, is quite limited, and is certainly the least powerful of all the ones reviewed in this magazine. It is not relational, and it can't handle pictures or samples. What it does do, however, is provide you with a very easy to learn and elegant to use system which is more than adequate for address databases and the like. Remarkably, given its simplistic nature, when it comes to performing filtered searches the database is actually easier to use than packages costing five times as much.

Although it's likely to be the least used part of the program, the spreadsheet is still rather basic. Overlooking the limited grid size that is available, the program lets you use a selection of mathematical and trigonometric functions. Unfortunately the program's editing functions are also somewhat restricted and even using the mouse to define a block can be a nuisance if the block is bigger than the visible screen.

There's also a very tasty graph printing program included which can output tons of different graphs. This is made less friendly by the fact that you need to define and save the spreadsheet data to be made into a graph before the program can handle it. If the programs multi-tasked this wouldn't be a problem, but it's a real pain having to quit one to load the other.

CONCLUSION

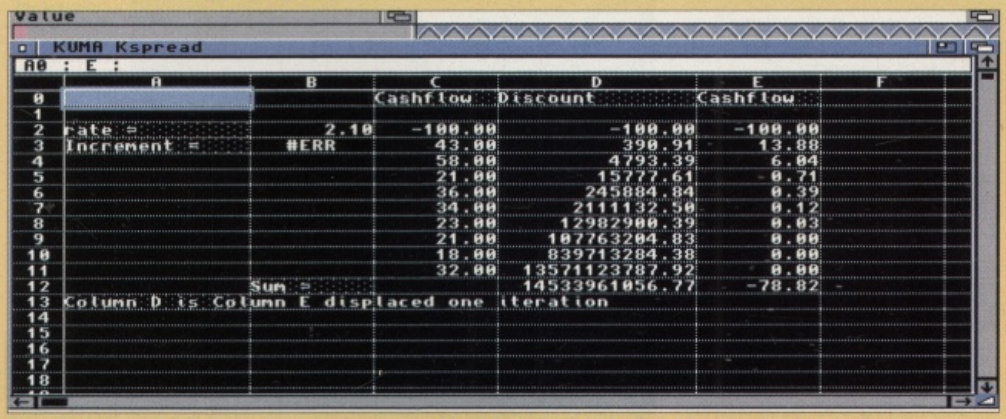
Although the individual programs are competent enough for novice users, if as much attention had been paid to the program's content, as to their appearance we'd be a lot better off. I have to admit that i don't like these programs, but I could see how some people might find the slick design reassuring.

Compatible: Any Amiga with 1 meg of RAM.

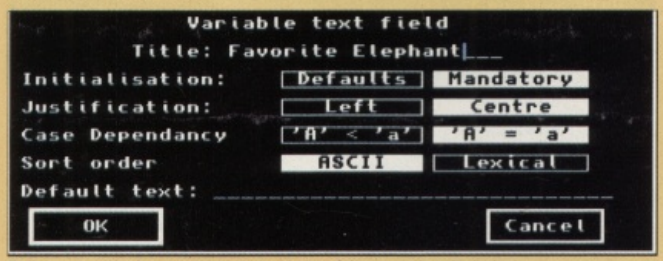
65%

KSPREAD 2 & K-DATA

£39.95 - HISOFT - 0525 713671



Kspread is a competent, but not exceptional, spreadsheet. I like the way that it ghosts label cells to differentiate them from the others.



Defining your data is easy, although the choice of data types is quite limited.

Perhaps based on the assumption that the first productivity program every user buys is a word processor, Hisoft have omitted one from their package and simply given you a spreadsheet and database instead.

K-Spread is currently up to version 4, but by including version 2 in this double pack, Hisoft have ensured that serious users will want to upgrade, whilst less serious ones will nevertheless receive a workable product.

The program is certainly less visually attractive than the *Mini Office* spreadsheet, but at the same time it is more functional and includes mouse editing options that the former program should have contained.

Its interface is very uncluttered and by automatically giving labels a different coloured background it's easy to identify the different elements of a sheet.

The program's inability to exchange data with other industry standard spreadsheet programs will be a disadvantage for more power hungry users, but as a home package it won't make any difference.

Also on the same disk is another version of the program which gives you the option to print graphs of your data. By providing two entirely separate programs, Hisoft let you make the most efficient use of your machine, especially if you're short on memory.

K-Data is yet another straight forward database, but it takes an original approach which slightly compensates for its lack of features. It is not relational, nor does it even accept pictures or sound samples, but it is ideal for the storage and organisation of textual data.

It offers all the usual data types: fixed and variable length text strings, dates, plus a special one called an Enumerated Value Field; a multiple choice field in other words. This means that you could define a field with three or four choices each of which is represented by a button when you're entering data.

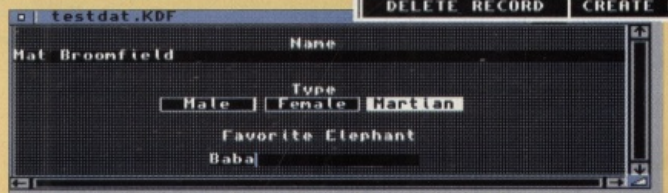
CONCLUSION

K-Data is a surprisingly neat little program, and the Enumerated Value Field is ideal when designing databases that are to be used by those who are not particulary good with computers or keyboards. Easy to use and with a well written manual, but not really very flexible or powerful.

Compatible: Any Amiga.

69%

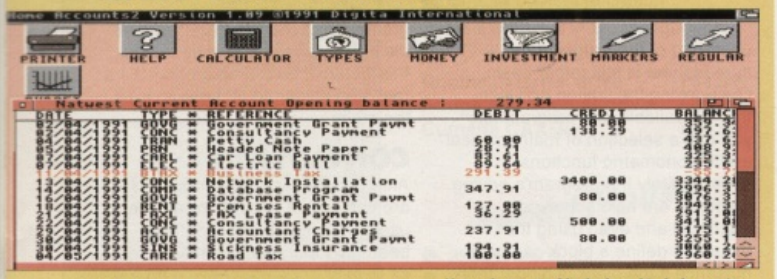
The program will list your records, showing only the key fields for ease of access.



Having defined a database with *KD-Design*, a second program called *KD-Data* is needed to actually enter the data.

HOME ACCOUNTS 2

£54.99 - DIGITA - 0395 270273



Home Accounts 2 **is designed to help you to keep detailed daily records of your expenditure and income, with options for budget forecasting and compound interest as well.**

Despite its title, *Home Accounts 2* can also deal with your business accounts too.

Whereas *Cashbook Controller* is designed to track the ebb and flow of your business finances on a monthly basis, *Home Accounts 2* is geared towards the sort of day to day requirements that let you know exactly how much you have in your bank account at any given second.

It lets you log both income and expenses and the latter can be grouped into a variety of pre-defined or user-defined categories.

The program can also cope with regular outgoings to which compound interest has to be added, including Mortgage and HP payments.

With the option to warn you when any of your accounts falls below or exceeds certain limits, *Home Accounts* is the perfect program for balancing your chequebook and managing your bank accounts.

If all the data seems a bit intimidating, you can choose to view it in graph form, and you can even define budget predictions against which comparisons may be made.

CONCLUSION

Although the first version of this program was a little clunky, *Home Accounts 2* is a very polished product, and its relationship to *Wordworth* is clearly visible in its user-friendly interface. If you have trouble controlling your finances, this could be your saving grace.

Requires Kickstart 1.3 or higher and 1mb of RAM.

83%

CASHBOOK CONTROLLER/ FINAL ACCOUNTS

£79.99 - DIGITA - 0395 270273

Few business tasks are more arduous or time consuming than doing the accounts. *Cashbook Controller* relieves some of the burden.

In a nutshell the program is used to track the flow of cash in and out of your company. It can be used to record all expenditure on a monthly basis, and income over the same period. With that information it can then produce detailed profit and loss accounts which will reveal the true trends your business may be taking.

It allows you to enter bank and cash transactions and will provide VAT breakdowns at your request. In fact it even allows you to specify a variety of rates.

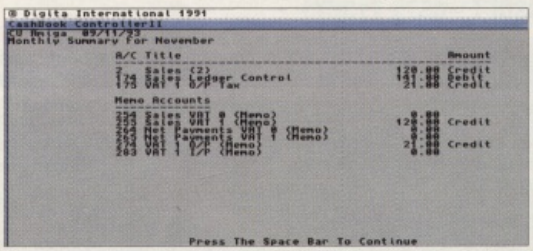
Also on the disk is *Final Accounts*, a program which can only be loaded via *Cashbook Controller* and which is a module designed to present your accounts information in a concise and intelligible form.

CONCLUSION

Cashbook Controller is a fairly spartan program, but that's for the better because if you've loaded it simply to input the day's transactions you don't want to be swamped by unnecessary options. It seems to perform its job adequately, but then that's not asking much. Using it will save you a great deal of time over the pencil and paper method, and although a spreadsheet could be designed to fulfil the same function, this is a much more elegant solution to your business accounting needs.

Compatible: Any Amiga.

75%



Cashbook Controller **will provide a summary of your company's finances at any time.**

DAY BY DAY

£29.99 - DIGITA - 0395 270273

As our lives become more and more busy, the need to become organised is ever greater if we are to survive without leaving a trail of forgotten errands, appointments, bills and birthdays.

Day By Day is an electronic organiser and calendar. If incorporated into the startup sequence of your hard drive-based Amiga, you'll never overlook another important event again.

When the program first loads, it will display all 'Urgent' messages. Urgent messages are simply those that you've specified as being so important that you want to be reminded of them each time you load the program.

By selecting forward you can also look at any overdue messages as well as those that apply to the next six days.

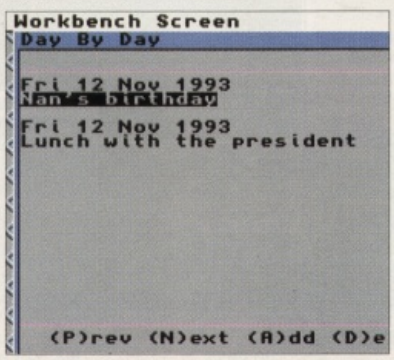
Basically the program lets you attach messages to any date of the year, reminding you about them as the date approaches. You can also create messages which will only be displayed for a certain duration (ideal if you want to be reminded to start saving for a birthday present!).

CONCLUSION

If like me, you tend to be so busy that you forget to pay bills, you forget to do jobs, and you even forget to put out the dustbin bags, then this might be a good solution. If you're running the program from a hard drive, you don't even have to remember to load it up in the first place!

Compatible: Any Amiga.

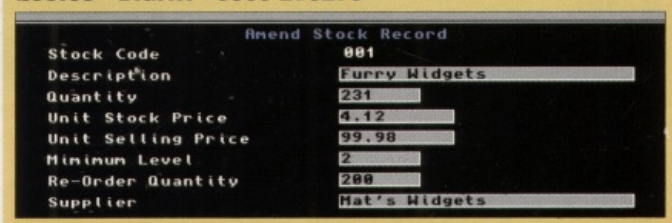
65%



Day by Day **will make sure that you never forget another important event again.**

SYSTEM 3

£59.99 - DIGITA - 0395 270273



System 3'**s stock control module lets you automate your re-ordering and inventory processes.**

Representing the Amiga's only stock control and invoicing program, Digita's *System 3* still looks as good today as it always did.

It combines three programs: *Cashflow Controller, Invoicing* and *Stock Control*, the latter pair of which work in conjunction with each other.

The *Cashflow Controller* is based upon *Home Accounts 1*, and simply lets you store an itemised breakdown of your company's income and expenditure. However, the *Invoicing* and *Stock Control* modules are the most useful parts of this program.

The *Stock Control* module lets you keep detailed lists of stock, producing re-order reports on demand thanks to its minimum re-order option. This is something like a giant stock database, but with the ability to intelligently analyse the items contained in the listing.

By contrast the *Invoicing* module is responsible for creating professionally formatted invoices, but better yet it can be linked to the Stock control module so that products which are invoiced are automatically debited from the available stock list.

CONCLUSION

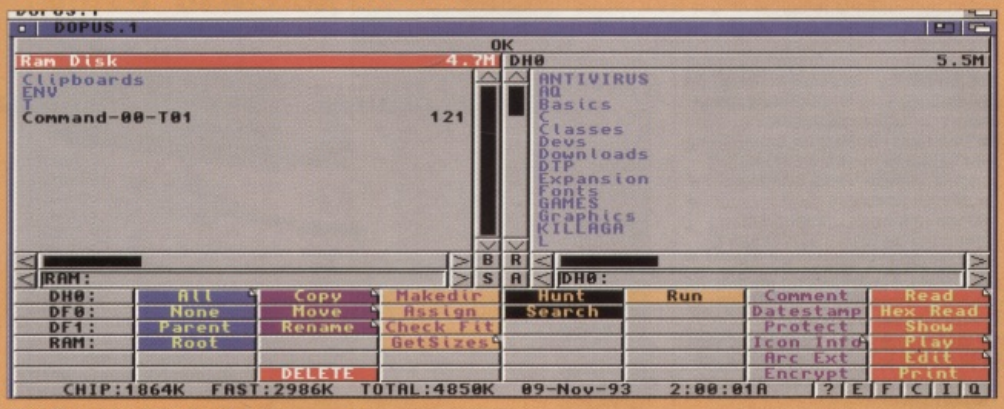
System 3 is a greatly under marketed product and now that the Amiga is so popular perhaps it might pay Digita to give it another push. Although you could probably get by with a database and word processor, these programs are ideally designed for the kind of data processing involved in a small distribution, retail or hire business.

Compatible: Any Amiga.

83%

OPUS DIRECTORY 4

£59.00 - INNOVATRONICS - 0707 662861



Opus Directory is widely acknowledged as being the best directory and CLI replacement program available for the Amiga.

The Disk Operating System is the main interface for communicating with your computer, and the CLI or shell is the place where you can do that. Unfortunately, this means that you'll need to know at least a few rudimentary commands. Unless, of course, you use *Directory Opus*.

Directory Opus takes all of the main housekeeping and disk manipulation commands and gadgetises them so that they can be performed by clicking a mouse button rather than typing in commands.

It lets you use frequently performed operations such as file copying, moving and renaming with ease. However it also lets you activate stand alone programs which themselves in some way manipulate data. For example you can activate an archiver which will archive a number of files, or you can activate a module player in order to listen to music modules.

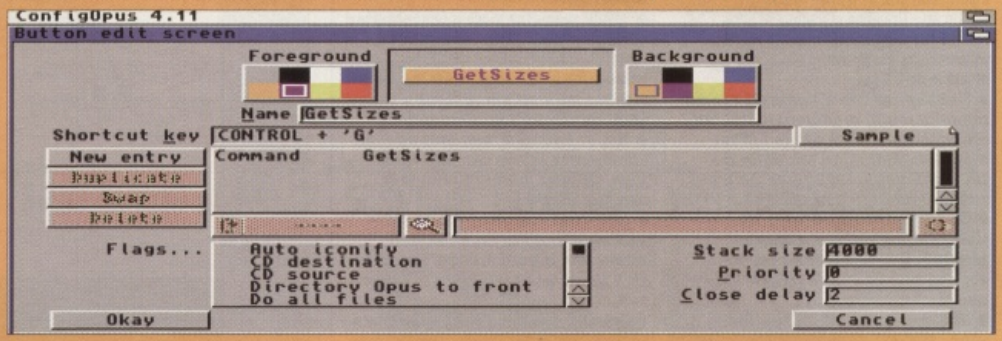
The beautiful thing about *Opus* is that it's so configurable; the user can specify just about every single tiny aspect of the program ranging from the function its buttons perform, to the colour of the screen.

By selecting the Configure Option from the main menu, you'll be transported to a configuration section from where you can tailor the program to your every whim.

The key to this configuration section is the fact that you can reprogram the buttons to do just about anything, and if there are not enough buttons, you can simply add entirely new banks of them.

Each button can be programmed to perform two functions, and the one that's selected is dependent upon which mouse button is pressed. The actions initiated by pressing the buttons can be defined by one of many pre-defined choices, or you can specify scripts to be executed if more complicated sequences of commands need to be performed.

If the execution of a script necessitates further input from the user when that script is executed (archiving a file for instance) then a requester will pop up as the appropriate button is selected.



Each button can programmed to fulfil a variety of functions, according how it's pressed.

CONCLUSION

Directory Opus is undoubtedly the most powerful CLI replacement and directory tool available for the Amiga, and whilst it is something of an acquired taste, those who use it regularly would not use anything else. For many people, this is as near as they'll ever need to come to programming on the Amiga.

Compatible: Any Amiga.

93%

SID 2

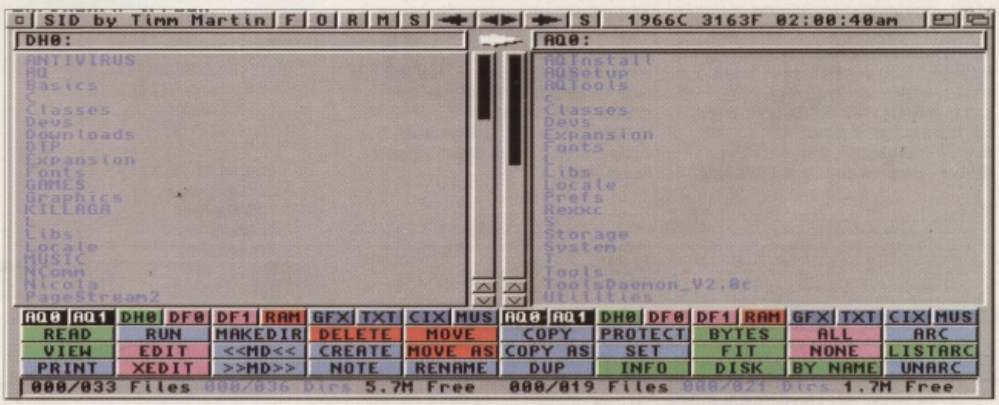
$25 - TIMM MARTIN

To Amiga purists, SID was the original and is still the friendliest directory utility available. Version 2 is the first and only commercial version.

Whilst it doesn't have anywhere near as much power as *Directory Opus*, it uses a slightly friendlier interface which some people find easier to get along with.

The basic program comes with many more redefined buttons than *Opus*, and like its rival you can always define more if you need them. Unlike *Opus*, each button only serves a single purpose, and if you want to do more, you'll need to define another button. Switching between button banks is easy; just press the right mouse button whilst the cursor's in the bottom half of the screen and the next bank will appear.

Many operations involve a source and destination directory, and whilst both programs provide you with two windows so that you can view both directories at once, only *SID* provides separate directory buttons for each window, a feature which for me, at least, ensures that I'll continue using it alongside the otherwise superior product from Innovatronics.



Whilst *SID 2* is nowhere near as powerful as *Directory Opus*, it's 75% cheaper, and some people find it friendlier to use.

CONCLUSION

Whilst *SID* is by no means as powerful as *Directory Opus*, it contains 90% of the features you're likely to need, and it is just that bit friendlier to use. At only 25 dollars it's cheap enough for virtually anyone to afford. An ideal program for the less demanding computer user.

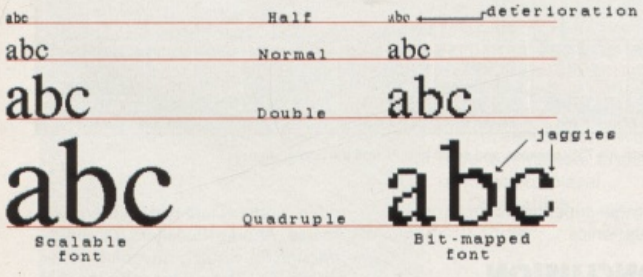
Compatible: Any Amiga.

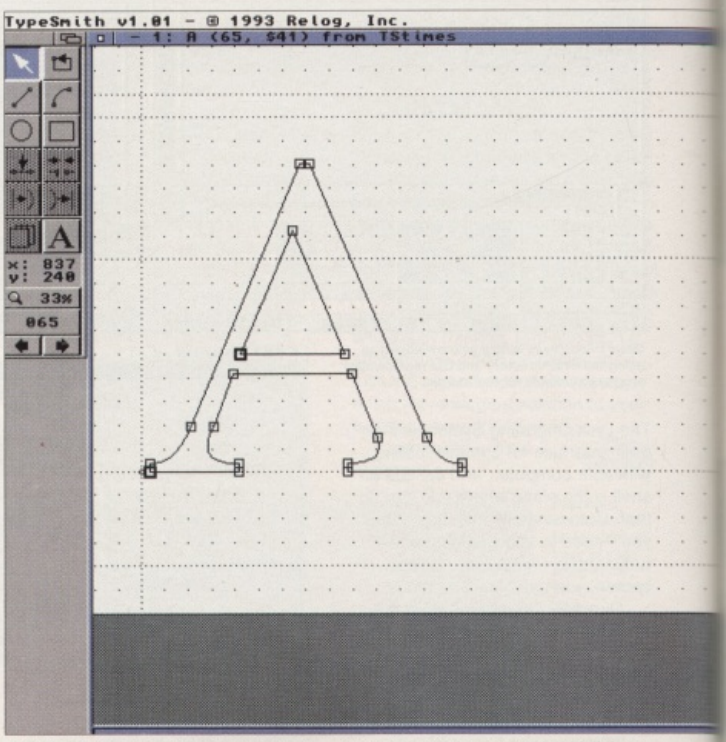
85%

JARGON EXPLAINED!

If we've swept you of your feet with our whirlwind guide to business software, here's where we bring you down to earth with our comprehensive guide to all the jargon we've used in this section.

- ARexx - The Amiga version of the Rexx language which allows inter-program communication and, more importantly, it lets you automate your use of any program that supports it.
- ASCII - American Standard Code for Information Interchange. The term given to the standard set of codes representing text characters and a few basic commands such as backspace, return, etc.
- Bit-mapped font - A font which is stored at a particular size as a pixel image.
- Clip art - Graphics of usually generic themes (animals, machinery, signs, etc) which can be easily incorporated into a document to perk it up.
- Clipboard - An area of memory of variable size which is used by programs to store temporary information. The clipboard differs from normal RAM in that data stored in it can be accessed by any program that supports the appropriate data type.
- Compugraphic fonts - A particular type of scalable font, a version of which was adopted by Commodore as the one that would be included with all Amigas running Workbench 2 or higher.
- Database - Refers either to a program which can store data which has been classified under user-defined headings, or to the actual data itself. For example, a database program is used-to store a list of people's names and addresses, but at the same time that list can be referred to as an address database.
- Dynamic Field - A database field that modifies the amount of memory it occupies according to the size of each individual item of data stored in it. This is in contrast to fixed fields which allocate a specific amount of memory for each data item regardless of its actual requirements.
- Encapsulated Postscript File - A special format for storing page layout information. It includes any bit-mapped images on the page as well as all fonts used in its text. It also describes the aspect ratio of all elements on the page. It's the nearest thing we have to a cross-computer industry standard for the exchange of page descriptions (word processor, DTP and graphic pages).
- EPSF - See previous entry.
- Field - The name given to one data heading in a database. For example in an address database you could have first name, street name or telephone number fields.
- Field Types - Refers to the sort of information that can be stored in a database field – graphics, numbers, sound, text, calculations or dates for example.
- Form - A template into which database information can be inserted in an easy to read and printable format.
- Interface - The link between one thing and another. For example a printer interface joins a computer to a printer.
- Jaggies - The visible 'steps' caused when a bit-mapped image is enlarged sufficiently to see the individual pixels that comprise angled lines.
- Justification - The process of aligning text with various parts of the paper so that it achieves a specific visual result. For instance left justification means that the left edge of a text block will be perfectly straight whilst the right edge will be ragged.
- Macro - A series of commands which are activated with a single command or key press. Designed to simplify complex or repetitive tasks.
- Mail Merge - The ability to incorporate database information into a document. Usually used to insert customer's or member's private details into letters so they are personalised.
- Network - Two or more computers linked either directly to each other or via server so that they can pool information resources, or that of the server.
- Postscript - A limited version of EPSF that doesn't contain fonts.
- Productivity program - Any program that produces a useable result. General term for non-games software.
- Relational database - A database program that allows multiple different databases to be opened simultaneously with common links defined between them so that data doesn't need to be duplicated when entries are made.
- Remote Terminal - A keyboard or dumb terminal which can access the resources of a computer processor and its storage, yet which is not in the same physical location. When you pay your electric or phone bill they use remote terminals to input your payment information, and modify the central customer records database.
- Scalable Font - Any mathematically defined font that can be resized without a loss of quality.





- Spreadsheet - A program for the organisation and processing of large columns of numbers. All spreadsheets provide a variety of mathematical functions, and the more powerful ones even offer built-in programming languages.
- Structured graphic - A graphic which is stored as a mathematical definition rather than a bit-mapped image. These have the advantage of being rescalable with little or no loss of quality.
- Text formatting - The process of arranging text for display on the screen or on the printed page.
- User-interface - A generic term which encompasses a program's design and friendliness as well as the way that it responds to input from the user.

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FOR AMIGA 1200

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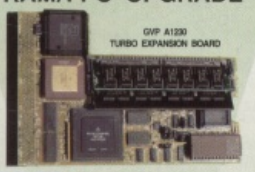

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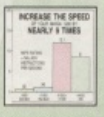

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FOR THE AMIGA 1200

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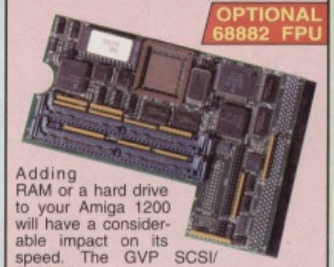

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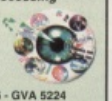

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Family Trees

You might be able to trace your family back several generations or be able to go back even further in time by as much as a couple of centuries. Trying to trace the lineage of a particular game genre is much, much harder though, but we thought we'd give it a shot anyway.

Adventure Games

Have you ever wondered how a genre changes through time? For example, how do we move from one of the Infocom games to something like *Legends Of Valour*? To see the answers to all these questions, read on. A quick note: These family trees are not intended to be the complete history of games, merely guidelines to the paths games have taken over the years. Read on, and enjoy.

COLOSSAL CAVE

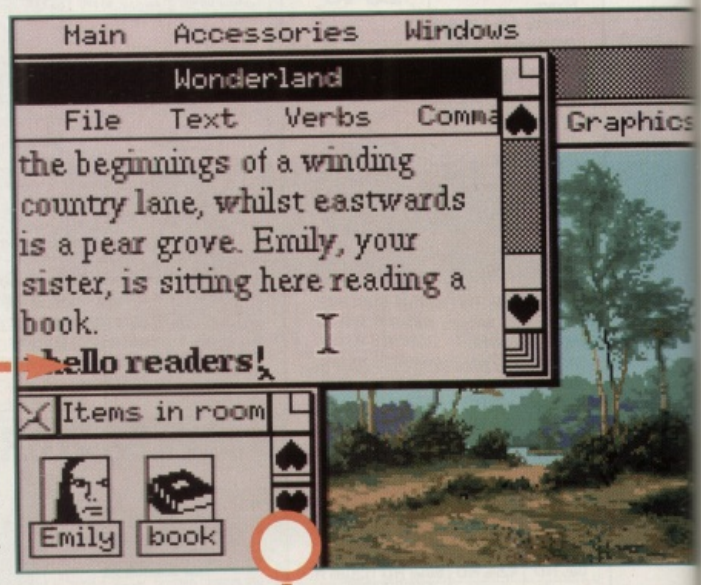
This is when it all started. Way back in the distant times of the early eighties, two university students came up with an idea for a new kind of computer game. One which you could read like a book, but interact with, taking the part of a character in the story, influencing what went on around you. That game was called *Colossal Cave*, and every adventure game around today, from *Lure Of The Temptress* to *Legends Of Valour*, owes something to that simple piece of genius. Obtuse and dated by today's standards, there are numerous PD versions of this game, if you really want to see a little history.

INFOCOM

Text adventures were set to rule the next five years of computer games, with names like Scott Adams and Mike Woodroffe making regular appearances in the computer game charts. However, it's Infocom that really brought adventure games to the Amiga market, with titles such as *Zork*, *Planetfall and Hitchhiker's Guide To The Galaxy*, which incidentally was co-written with Douglas Adams himself. They brought a slightly more intelligent parser, stacks of locations and other characters, plus more intriguing plots and fiendish puzzles. It was still all text at this point, though.

LEVEL 9

Text was still the byword when *Level 9* rolled onto the scene, primarily in the ZX Spectrum and Commodore 64 markets, but they also brought something new. Graphics. Again, the parsers had come along a fair way, but the inclusion of half-screen still graphics added a little to the games. Now you could see the world you were playing in, albeit in a very simple form. For the most part, Level 9's early graphics consisted of little more than a door, or a window, but it was a start!


Main Accessories Windows
Wonderland
File Text Verbs Comma
Graphics
the beginnings of a winding country lane, whilst eastwards is a pear grove. Emily, your sister, is sitting here reading a book.
Hello readers!
Items in room
Emily
book

MAGNETIC SCROLLS

Probably the last of the great text adventure writers, Magnetic Scrolls brought adventure games screaming and kicking onto the Amiga. Who can forget that first ever screenshot of *The Pawn* all those years ago in *C+VG*? As text adventures go, Scrolls' games, ranging from *The Pawn, Guild Of Thieves*, the superb *Corruption, Fish* and lastly *Wonderland* were among the best ever written, featuring one of the most intelligent parsers around (If you were to type 'I Think Therefore I Am', you'd be answered with 'Oh you do, do you?'). The big thrill, though, were the gorgeous 32 colour graphics that scrolled down from the top of the screen whenever you entered a new location – the likes of which had never been seen on a computer before. Recently, Magnetic Scrolls released a bumper bundle of *Fish, Corruption* and *Wonderland* using the new(ish) Magnetic Windows system, that worked along similar lines to a desktop with different windows showing different aspects of the game.

DUNGEON MASTER

When FTL released *Dungeon Master* to an unsuspecting Atari ST audience, I doubt they knew what they were letting themselves in for. In hindsight, it all seemed so obvious – take the original format of adventure games, and replace the text with graphics. Instead of saying, 'You are in a tunnel. You can see a skull. Exits are to the north and south', you can show the tunnel with the skull. Using a new point and click system, the game was a doddle to control, and the sheer size of it meant that it would take a long time to conquer. Even now, some five years later, we are still getting letters from people stuck in the game.

MANIAC MANSION

Lucasfilm were another company that made the transition from text to graphics, only they did it from a different perspective. Again, this was another company that doubtlessly didn't realise that they were creating a completely new genre. What they had created was the graphic adventure, using a point and click system to directly control characters and objects on screen. Possibly the biggest difference between the design of this and the design of adventures that had come before it was that this didn't feature you as the main character. Instead, you controlled someone else's life. It had been done before, in games like *Spellbound* on the ZX Spectrum, but this was really the first on 16-bit machines.

MONKEY ISLAND

The graphic adventure went through relatively little change as time wore on, with better graphics and more locations being added each time one appeared. It wasn't until *The Secret Of Monkey Island*, though, that the world really sat back and went 'wow!'. Sumptuous graphics and more intricate puzzles than you'd find on the final of *The Krypton Factor*, *Monkey Island* was a smash hit, and is just as popular today.

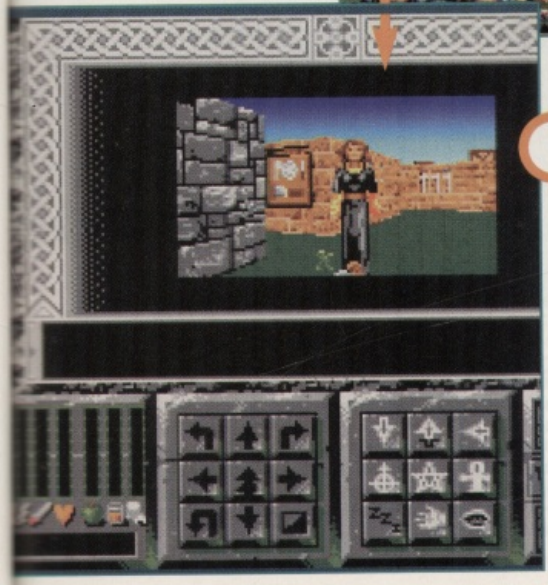
of damage.
A Warrior swings at SAMSON, and hits for 7 points of damage.
BRIAN THE FIST chops at a Warrior, and hits for 6 points of damage.
Warriors
AC HIT PTS SPL PTS
THE FIST 2 40 34 0
SAMSON 2 39 32 0

ISHAR

Silmaril's second greatest game, overshadowed only by *Ishar 2*, which is really more of the same. Ishar combined the simplistic control of *Dungeon Master* with the varied locations of *The Bard's Tale* and came out with one of the most attractive games to date. Some stunning visuals, easily on a par with those seen in the Magnetic Scrolls games, left you with an adventure with much more atmosphere than most. Again, this is riding that grey area between adventure and Role Playing Game.

THE BARD'S TALE

Though not strictly an adventure game, *The Bard's Tale* series took the interface and realism that made *Dungeon Master* such a hit and set it in a much larger location. Instead of running through miles and miles of similar looking tunnels, you could now run through cities, underground passages and even a little of the great outdoors. A simple, text based interface handled things like magic and conversation, while the non-linear approach to a lot of the game left it more like a Role Playing game than an adventure. Still, I had to include it, as it gives the logical progression to...



LEGENDS OF VALOUR

Surely one of the greatest adventure games ever written, *Legends Of Valour* finally gave you what so many adventures before had tried to – almost complete freedom. With a basic set of aims, you were free to run around the city of Mittledorf, completing quests in any order, and even picking and choosing your tasks to some degree. Its most famous point of interest has to be the graphics, though. Where other games of this type gave you four-way movement, restricting your view of the world to four main compass points, Legends lets you walk anywhere and everywhere, thanks to its clever texture mapped polygon graphics.

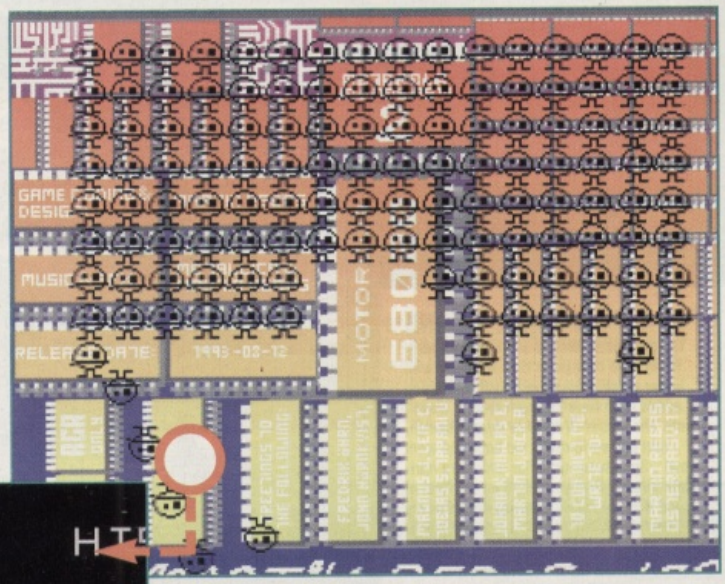
LURE OF THE TEMPTRESS

The latest and greatest in a long line of graphic adventures, *Lure Of The Temptress* was a large step forward for the genre in that all the characters in the game lead real lives. People get up in the morning, go to work, maybe shop at lunchtime, and then retire to the pub for a few before going to bed. They also interact with each other, regardless of anything you may be doing. Not only does this lend a lot of scope for new types of puzzles, it also gives a greater depth of realism. A new direction for adventure games?

Shoot 'Em Ups

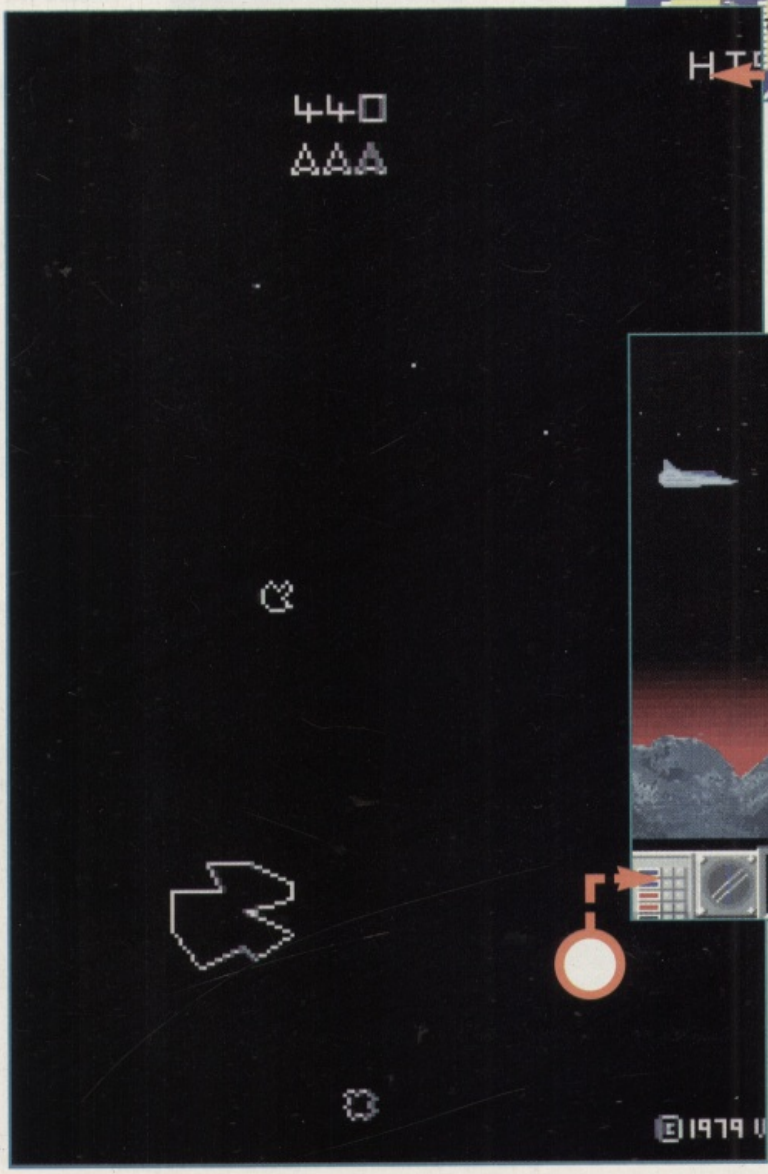
SPACE INVADERS

It wasn't the game that started the genre, but it sure was the first to stir public interest. Space Wars already had a small section of the community moving small blobs around, using them them to destroy other small blobs, but *Space Invaders* had everyone doing it. I don't really need to describe it to you, do I, other than to say that there are a million different clones to be found on PD.



GALAXIANS/ASTEROIDS

Technology was improving, and so were game designs. Captivated though the public were, it wasn't long before coin-op manufacturers decided that there just had to be more to the games world than sitting at the bottom of a screen and shooting upwards, so along came *Galaxians* and *Asteroids*. Both owed something to *Space Invaders* in that they were both monochromatic shoot 'em ups that were played on a static screen. However, *Galaxians* featured the first 'proper' attack waves, and *Asteroids* let you start moving a ship about in two dimensions, instead of the rather staid one.

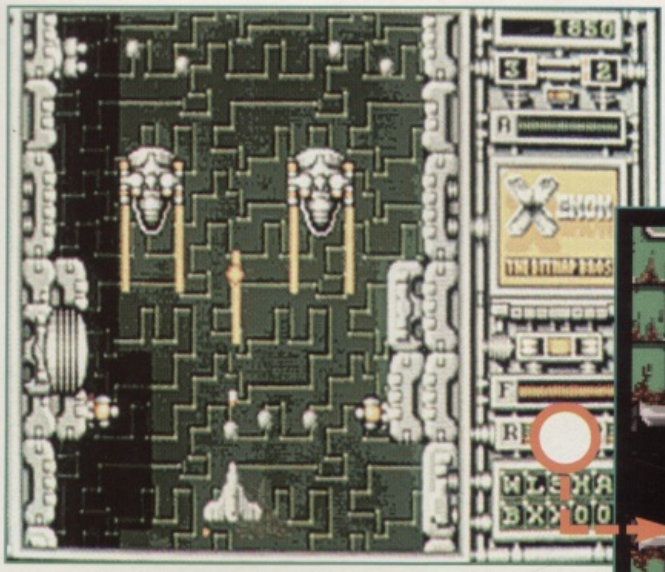


SCRAMBLE/DEFENDER

The first ever scrolling shoot 'em up has to be *Defender*. An age old classic, copied time and time again yet never quite beaten in the playability stakes. Even today it's as addictive and exciting as when it first appeared. *Defender* would never have existed, though, had it not been for *Scramble*, a simpler game with single direction scrolling. *Defender* introduced fast moving attack waves, multiple weapons, incredibly fast scrolling to the left and right, and a variety of aliens.

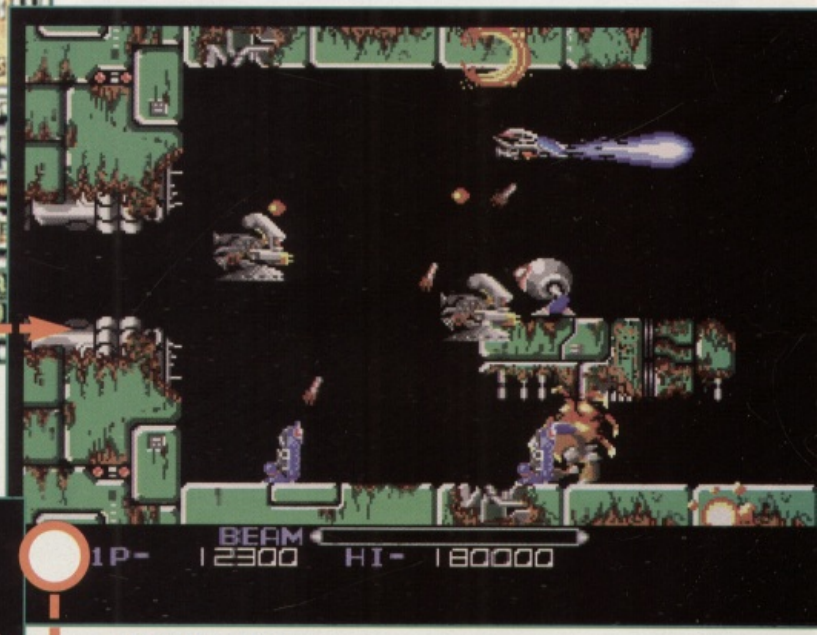
GOLDRUNNER

Goldrunner from Microdeal is a fairly featureless and bland shoot 'em up by most people's standards. It features a small playing area, very tough levels and not a huge amount of playability. It was, though, probably the first Amiga shoot 'em up to make any headway. Playing like *Uridium* turned through ninety degrees, you had to race at high speed avoiding raised obstacles while blasting away large but predictable waves of aliens. Like I said, nothing fancy.



XENON

The Bitmap Brothers caused an enormous stir with this one. All over the world, magazines were proclaiming *Xenon* to be 'like a coin-op in your home'. Silky smooth scrolling, albeit a little slow, and some suitably metallic graphics gave it that arcade look, and some extremely long levels gave it enough of a challenge to keep you playing. It all looks and feels dated now, sure, but considering it was original it was quite an achievment.



R-TYPE/DENARIS

While it didn't cause as big a reaction in the arcades as, say, *Scramble*, *R-Type* was still a highly important shoot 'em up, going on to influence whole armies of games after it. Featuring some highly detailed backdrops and unique weapons systems, it was nothing more than a logical extension from *Nemesis*. The Amiga conversion had a similar reaction – it looked exactly like the original, while not actually being as playable. Clones were rife, with the best of the time being the classic *Denaris* from Thalamus (withdrawn and then re-released as *Katakis* a little later).

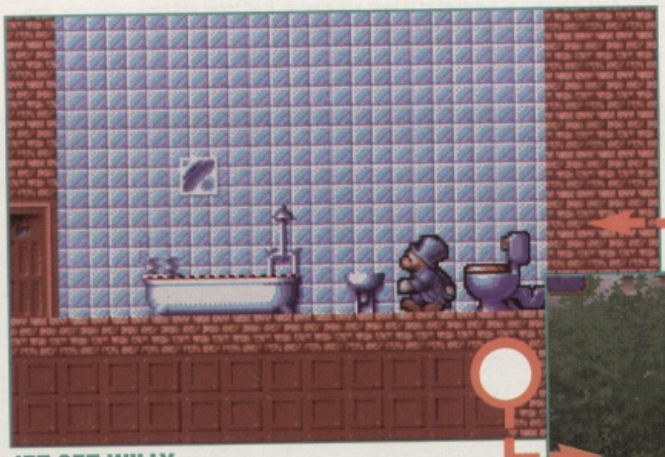
XENON 2

One of the highest rated games ever, and still listed in most people's top ten games, *Xenon 2* has to be The Bitmap Brother's finest hour. It looked good, played well and featured a soundtrack written by Bomb The Bass man Tim Simenon. A vertically scrolling gunfest, the game pushed the Amiga games market further than any other had to date, and to most people's eyes this has yet to be beaten. Perhaps a little slow in places, but otherwise still looks as good today as it did then!

PROJECT X

Team 17 came through with the current Amiga standard setter a little under two year ago which pulls together all the good points of everything we've seen here to form one of the most playable games around. Smooth, fast scrolling, very detailed sprites and backdrops, more sound effects than are humanly possible to name and more levels than the Coca Cola building in Hammersmith, *Project X* is a game that no self respecting Amiga owner should be without.

» Platforms

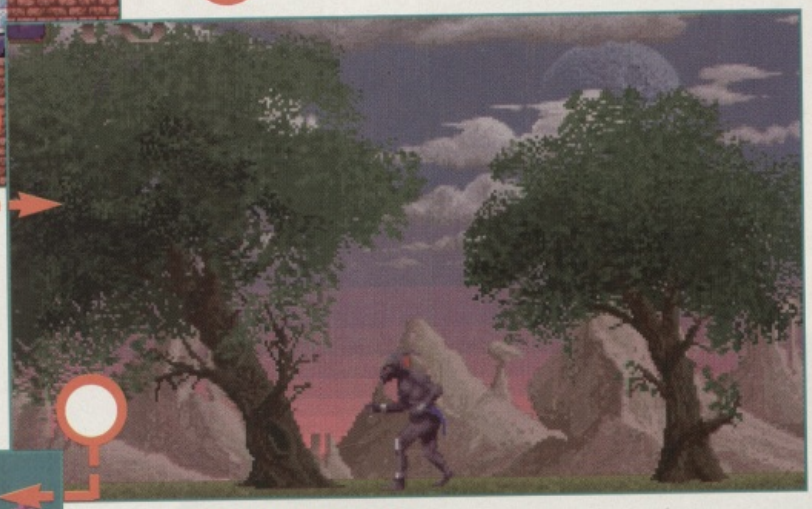


JET SET WILLY

Officially recognised as The Game That Started It All on computer. Games like *Manic Miner* and *Donkey Kong* came before it, but this was the first to really hit the public. There wasn't much to do, it has to be said, other than run around rooms, avoiding flying feet and chainsaws and hum along to the theme tune. Incredibly simple in design, the Spectrum owning audience bought it in droves, making programmer Matthew Smith very well off into the bargain. An Amiga version was released a couple of years ago, but the less said about that, the better.

MONTY MOLE

Gremlin's *Monty Mole* was one of the first computer game 'characters' to have any success. At a market time when coin-op conversions and film licenses were rife, it was surprising to see so many people returning to the same face again and again. The Mole series of games were quite simple, but stood head and shoulders above the JSW style games in that you had a slight adventuring element to the game (you had to bring items from one place and drop them in another).



SHADOW OF THE BEAST

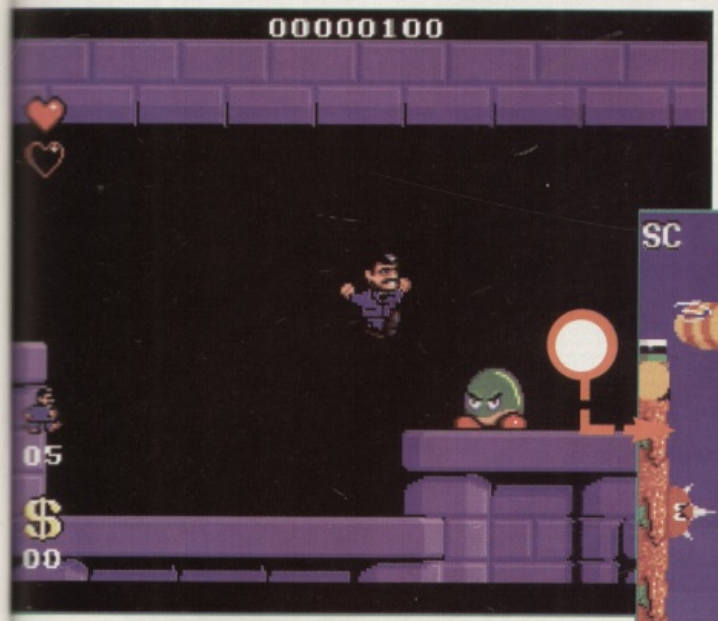
Yes, the logical progression from Monty Mole is Psygnosis' epic *Shadow Of The Beast*. Coded by Newcastle-based Reflections – a team renowned for doing that little bit extra with Amiga graphics – the game looked almost unbelievably good. Countless layers of parallax scrolling, a subtle and tasteful palette and huge sprites made it one of the best selling games ever on the Amiga. That said, you were still only going from point A to point B, collecting something and taking it to point C. It spawned two sequels, neither of which really excited the world like the first. *Beast 3* was a step toward graphic adventures, but that's another story.

SUPER MARIO BROTHERS/SONIC THE HEDGEHOG

They're console games, and they always will be. There are no plans to release either on the Amiga, which seems to be a constant bone of contention with Amiga owners, but remember, without these two games, the platform games market would not be as healthy as it is today! *Super Mario Brothers* took the puzzle based platform game, and improved it a hundred fold, whereas *Sonic The Hedgehog* took thinking out of the equation and created the all action reaction test. You may curse the names and you might get particularly irritated by the moustache, but remember this: consoles gave the Amiga platform market a well needed kick up the behind.

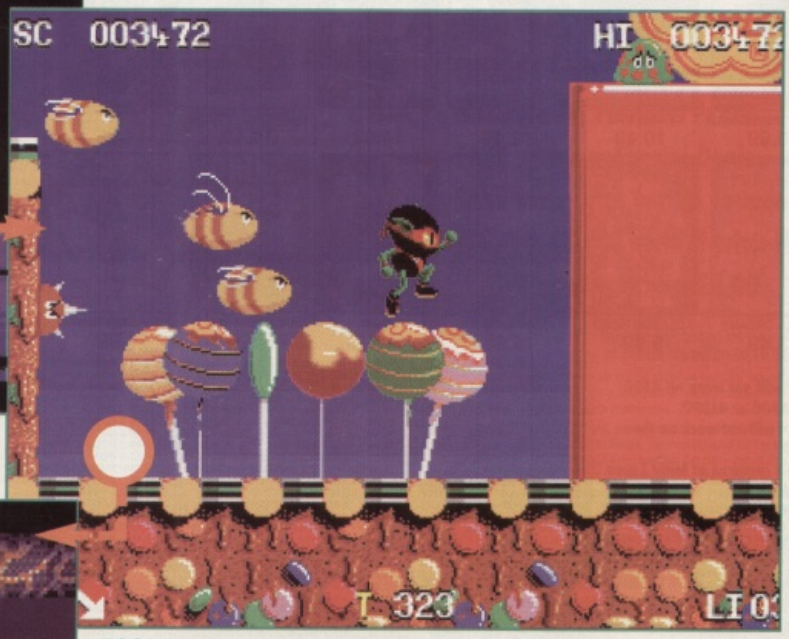
ROBOCOD

The sequel to *James Pond*, *Robocod* was probably the first really successful attempt at a Mario-style platform game (with the exception of the *Great Gianna Sisters*, which was almost an exact copy, withdrawn from the shelves almost immediately!). It had everything that made Mario so popular – a cute character, extremely varied and challenging levels and pots of secret rooms and puzzles. At times it could get a bit frustrating, but for most of the time it had the kind of playability that other games could only dream of.



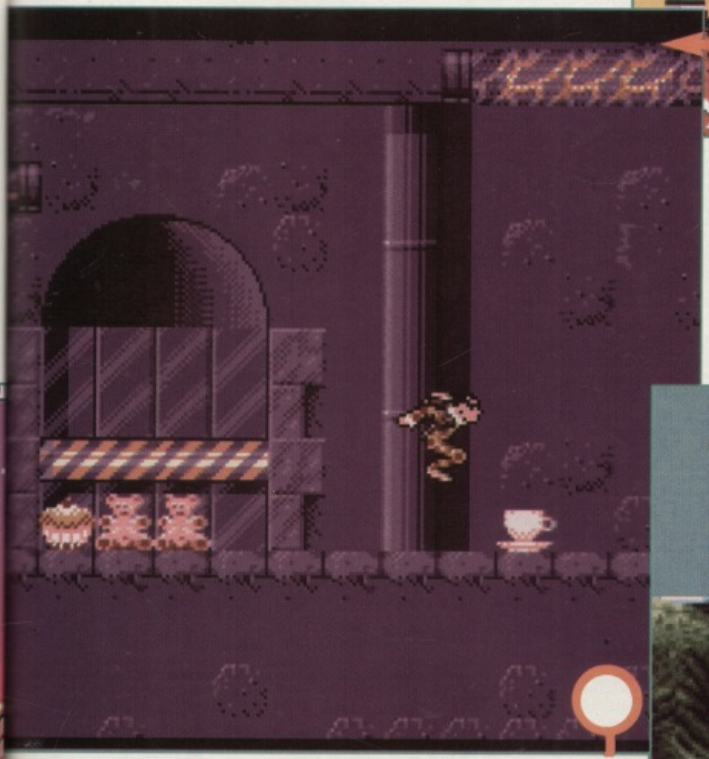
ADDAMS FAMILY

If *Robocod* was an attempt at *Super Mario Brothers*, the *Addams Family* 'was' *Super Mario Bros.* Based on the film of the TV series of the daily comic strip, you controlled father of the family Gomez in a daring raid through the cooky Addams house to rescue his family, kidnapped by a bogus Uncle Fester. From swinging spiked balls to bonuses in the most unlikely places, this was a game you could play time and time again, and now it's been released on a budget label, anyone who doesn't have it can rush out and get it.



ZOOL

As *Robocod* was to *Mario, Zool* is to *Sonic*. Ignoring the sometimes plodding pace of the standard platformer, speed is the keyword for *Zool*. Described incorrectly by many as an ant, Zool is a space ninja which he proves by being one of the most agile characters to hit the market. What he loses in charm, he makes up for by being able to leap, spin, kick, punch and fly all around the maze-like levels, fighting violins and turnips alike. The speed had the tendency to make the game a little unplayable in places, but as a reflex tester it has yet to be beaten.



HARLEQUIN

A cross between a graphic adventure and a platform game, *Harlequin* is possibly one of the most attractive games to ever hit the Amiga. Beautifully presented and designed, it tells the rather surreal story of a clown returned to his home to find it devoid of smiles. As he sets off to put things right, he has to climb monstrous clock towers, mess about in an askew Egyptian pyramid and generally swing about in all manner of weird locations. It needs a little more thought than your average platform game, but if there's one thing you could never call *Harlequin*, it's average.

FLASHBACK

The sequel to the cult graphic adventure *Another World*, *Flashback* is a platform game that shouldn't be played as a platform game. The furthest extension of the *Monty Mole* genre of platformers, *Flashback* features the most realistic character animation ever. Using a system called Rotoscaping, the main character was created by filming an actor going through the moves, digitising him, and then trimming the image to fit. The end result is some of the most fluid animation ever.

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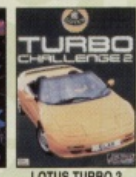

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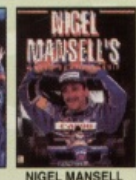

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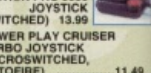

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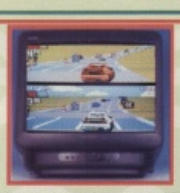

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SCART LEAD - AMIGA TO PHILIPS TV ...9.99

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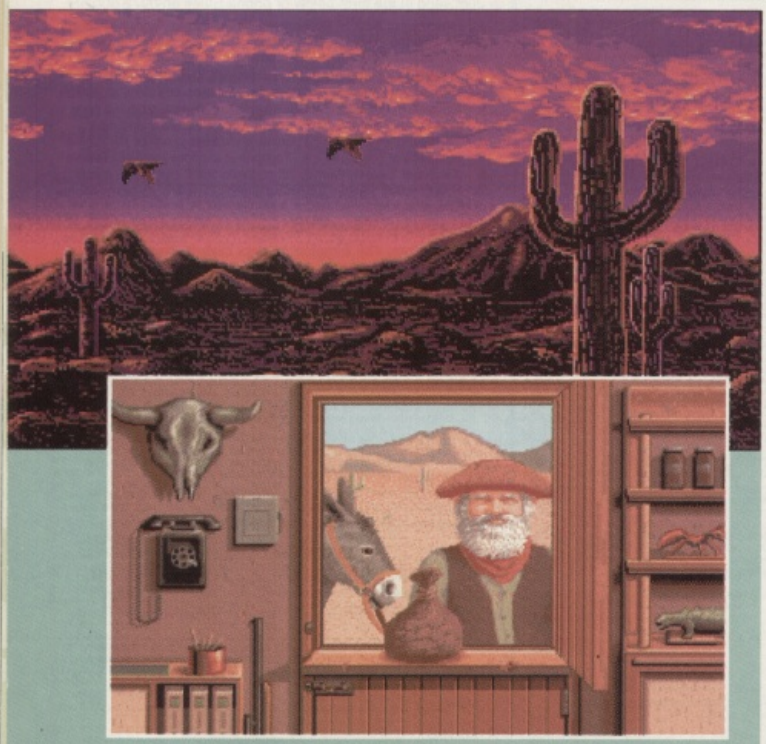
Superstars

It's such a small word, but it makes all the difference. The computer equivalent of an Oscar, a CU Superstar shows that a game has made the grade, that it is ground-breaking in one way or another and that it will be regarded as a classic for many years to come. Or does it? On these pages, we look back at some of the games that have reached the ultimate pinnacle, and see how they compare with today's high standards. Surprisingly enough, most of them get to keep their accolade, with a few slipping down to mere screenstars. Who says we ever got things wrong?



IT CAME FROM THE DESERT – Cinemaware

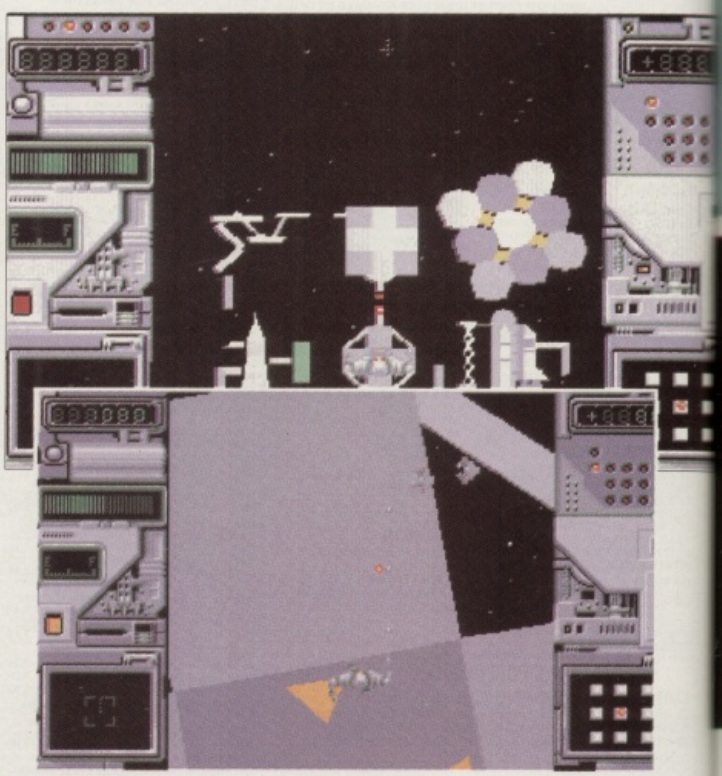
REVIEWED: JANUARY 90, 96%

'It goes without saying that *It Came From The Desert* is extraordinarily polished. The sections all interlock fluently, whilst the graphics, as ever, are excellent. All the townsfolk you come into contact with appear as large animated stills, whilst the locations are authentically put together. The sound adds to this, with a suitably eerie tune for much of the time which changes as you visit other locations, for example you're treated to country rock at the bar and the radio station, and hoe down violins at the various farmsteads dotted about the map. *It Came From The Desert* is Cinemaware's most complete game yet.' *Mike Pattenden*

Cinemaware was an ambitious idea at the best of times, as Mirrorsoft took the then enormous 500k the Amiga had to offer and set about creating games that were cinematic to watch, if not to actually play. There were a whole variety of games created under the label, from sports games to semi-adventure games like this and *Rocket Ranger*. This was, though, without a doubt the best of the entire series. As the title suggests, the game is based around a B-movie style invasion of a small desert town, where giant ants are running amok. You play the suitably rugged hero out to the rid the town of the infestation, with the odd romantic encounter thrown in for good measure.

In these enlightened days, of course, it is nowhere near as impressive as it first was. As large, rendered photorealistic images become the norm, and strategy games pass through *Civilisation* and beyond, it just doesn't look or play as it once seemed to. Lacking in depth, it all comes across as a little superficial. Fun to play, but dated now.

73%



ROTOX – US Gold

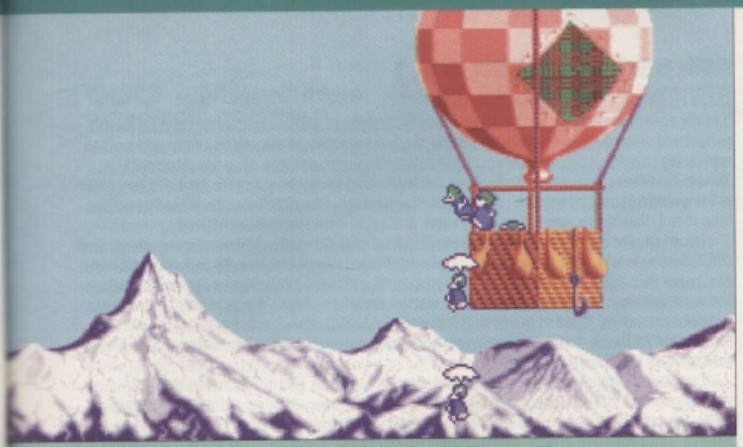
REVIEWED: JUNE 90, 97%

'Too many shoot 'em ups are patronising rehashes – but this one's just a bloody good original. It's a bit disorientating at first, but the gameplay and the aim of the game are so simple that you'll soon get used to it while cramming the swear box with ten pees when, for the third time in a row, you mistime that all-important jump and send your cyborg careering into space. All in all, *Rotox* is a delight. Remarkable and inspired. A quick straw poll around the office confirms that here at CU we think that this one's a winner. It'll last three times as long as the Hundred Years War.' *Steve James*

There are really two different ways to describe *Rotox*. One is as a super blaster. The other is as a bog-standard shoot 'em up with a gimmicky backdrop. However you look at it, it sure had a lot of originality. You controlled a lone spaceman, armed with a small hand cannon, against hordes of alien creatures that looked very similar to flies. In that department, everything was fairly standard.

What really set the game apart was the unique rotating graphic system. The entire screen rotated around the player, including the backdrop, and a combination of a matrix to hold the sprites and an interactive polygon backdrop made the whole thing convincing. It was playable, and very challenging, yet lacked the speed to make it a sure fire hit. But when it should have been shifting at the speed of *Bob's Bad Day*, it crawled along, and that spoiled the whole thing. Now, of course, it all looks a little primitive.

71%



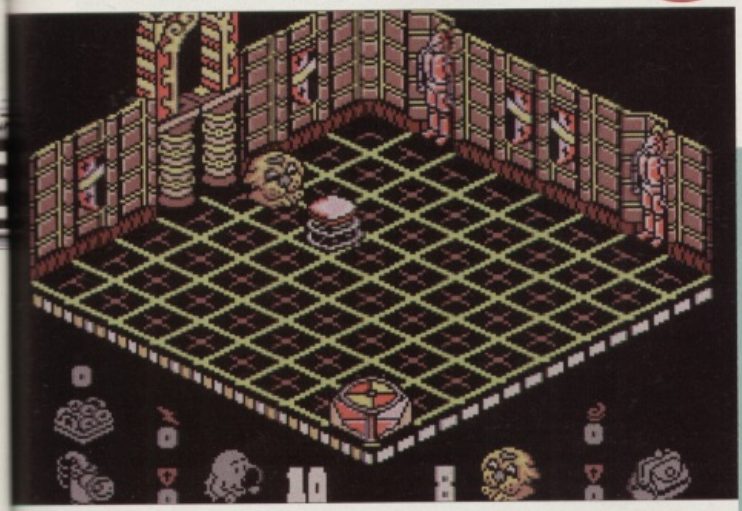
LEMMINGS – Psygnosis
REVIEWED: FEBRUARY 91, 94%

'*Lemmings* is the perfect family game. The difficulty levels mean that it's playable by all ages, and once you've grasped the gameplay you can play it straight away. The only problem I came across was trying to select a particular lemming in a crowd of around a hundred – but chaos is half the fun with *Lemmings*. A truly excellent game.' *Mark Patterson*

Is there anything that can really be said about *Lemmings* that hasn't been said a million times before? It's been on every single computer format ever, and has sold more copies than nearly anything else. A simple but extremely effective strategy game, you lead a small group of Lemmings from one side of a landscape fraught with danger to the other, hopefully keeping enough of them alive to let you move to the next, far more intricate and frustrating level.

After an add-on disc (*Oh No! More Lemmings*) and the imaginatively titled *Lemmings 2*, this still looks as playable and addictive today as it ever did. Complaints of it being too difficult, or the graphics being too small just got pushed aside in the stampede. Full of character and extremely entertaining to play it just can't be faulted. One of the best games ever released.

94%



HEAD OVER HEELS – Ocean
REVIEWED: SEPTEMBER 91, 94%

'With its many tricks and traps, *Head Over Heels* can quite easily claim to be the best arcade adventure the Amiga has ever seen. In releasing *Head Over Heels* after all this time, and on budget, Ocean have taken a worthwhile risk which they have pulled off perfectly. *Head Over Heels* is a must for every Amiga owner, and could hopefully pave the way for some of the better past licenses and original products to eventually make it on to the Amiga.' *Steve Merrett*

When Imagine Software invented the Filmation game system, I bet they had no idea how many spin offs were going to appear. Interestingly enough, after Imagine collapsed, Ocean took up the reins, and went on to create a fair few brilliant isometric puzzle games. Batman and *Head Over Heels* were easily the best, and *Head Over Heels* ported brilliantly to the Amiga. OK, so it doesn't look much like an Amiga game, as the original graphics were copied over and retouched a little, but that's half the charm.

This game isn't about graphics. Let *Monkey Island 2* have all the fancy looks, and leave the solid gameplay to Head and Heels, a dog that has been split in two and dumped in a maze-like series of rooms and puzzles. Each has different qualities, and success in the game depends on your ability to use the pair together. A real throwback to the days when all that really mattered in a game was the way it played, and *Head Over Heels* plays brilliantly. Although a little basic at first glance, you soon become caught up in two and one of the best games ever. You can still get it on its original budget label, and you are well advised to if you haven't already.

94%

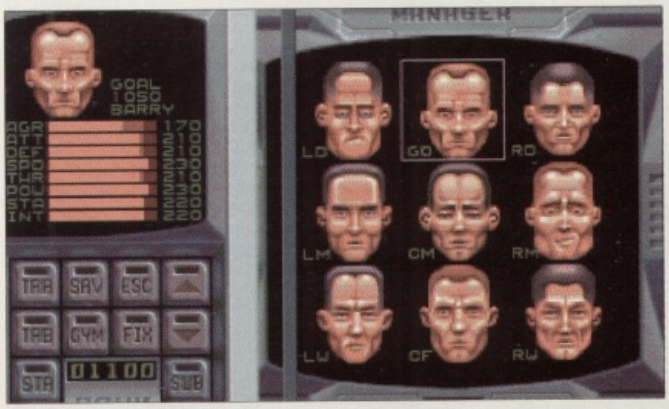
SPEEDBALL 2 – Image Works
REVIEWED: FEBRUARY 91, 95%

'Summing up *Speedball II* is an almost impossible task. It retains the basic gameplay of the original, but expands on practically every part of it. The new, enlarged pitch makes for a faster game which involves more passing and dodging skills, and the new pitch-side features add even more variety – as does the improved violence! In fact, there is absolutely nothing to fault in *Speedball II*, the people involved have produced a sequel which far exceeds any of my high expectation and, in the process, have created a game which is without a doubt a classic.' *Steve Merrett*

If you should ask any Amiga owner to name really good two-player games, the chances are they will name *Speedball 2* as one of them. The Bitmaps on full force, Speedball was celebration of skill, speed, violence and all things metallic looking. Similar to Rugby, but played in an enclosed arena, *Speedball* gave you the chance to beat up your mates and then humiliate them with some outrageous scoring. Not surprisingly, it was a huge hit both in the office and 'out there'.

However, like many two player games, it suffered badly if you were sitting at home on your own. Although still exciting, anyone who has ever played *Kick Off* when sat alone will know how much of the attraction disappears when you start playing against the machine. Effortless passing, superbly controlled set pieces and all kinds of stunts and tricks that you would love to be able to do are performed effortlessly against you. Put it against *Sensible Soccer* or *Kick Off 2*, and *Speedball* looks a little dated. Perhaps it's time the Bitmap Brothers got their heads together and came up with Speedball 3, then we'd definitely get no work done around the office.

89%



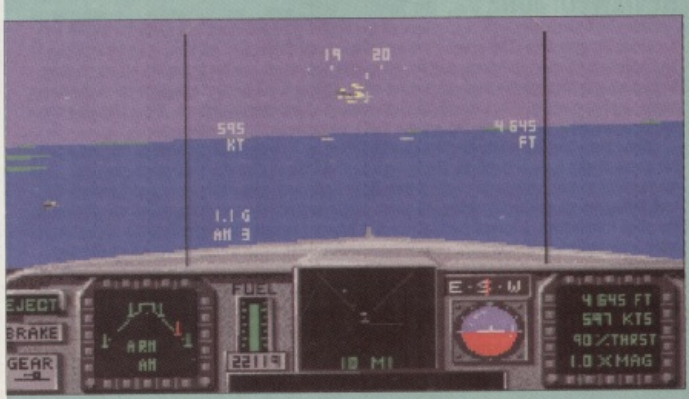
F-19 – Microprose
REVIEWED: SEPTEMBER 90, 94%

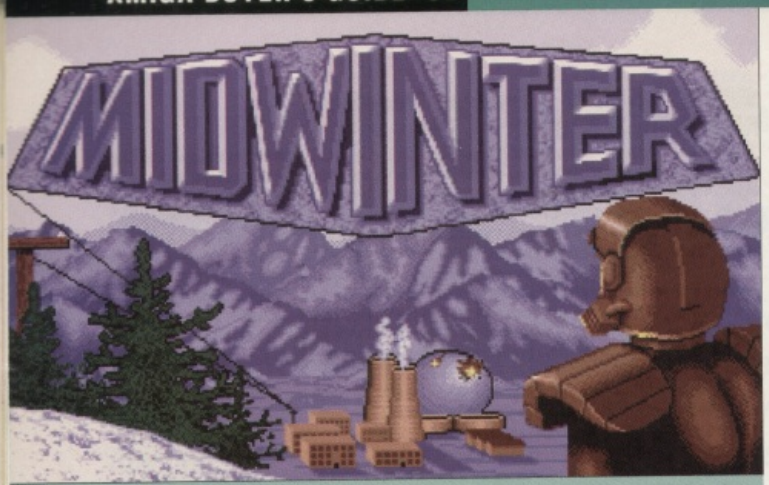
'The graphics are among the best I have seen on any Amiga flight sim. They're smooth, fast and well drawn. Another interesting point is that objects slowly come into view unlike other flight sims where mountains spring out of nowhere. It's also nice to see enemy planes and installations on your camera display, instead of dots in the distance. F-19 is taxing, though it's surprisingly easy to get to grips with the controls. This is an excellent sim for the novice, but expert pilots shouldn't be put off either. If the game's set on a high difficulty level you need to use every trick in the book and push the F19 to its limit. A truly excellent simulation.' *Mark Patterson*

A good flight sim will never age, and this is a brilliant flight simulation, made even better by the faster processor in the A1200. It might look a little basic next to sims like *TFX* and *Gunship 2000*, but it's still realistic, challenging and playable three years down the line. Like many of Microprose's simulations, it's mission based, with the player needing to comple random sets of tasks to rise through the military ranks.

What was interesting about this one was the fact that it was based on an apparently non-existent plane. Rumours were rife concerning the top secret stealth fighter (later named as the F-117A), so Microprose stepped forward with their prediction. The stealth design of the craft meant considerably different flying tactics to the standard combat sims circulating at the time, and it's that difference that sets it apart from many, even now.

94%





MIDWINTER – Microprose

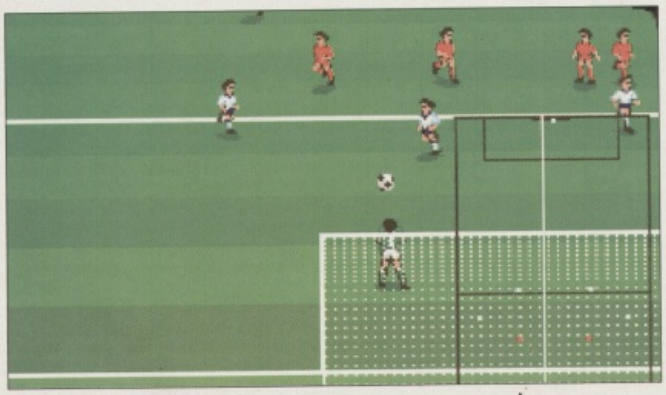
REVIEWED: MAY 90, 96%

'*Midwinter* is in a class of its own when it comes to plotting. The two-hundred page manual features fascinating insights into the world in which we live, and it has a fantastic background story which sets the scene for the host of believable characters who make up the Midwinter peace force. Although we're only a third of the way into it, *Midwinter* on the Amiga has got to be a contender for game of the year. It has everything you want. So much effort and research has gone into making *Midwinter* sparkle. You'd be mad to miss it.' *Mark Patterson*

Mike Singleton has been responsible for more than a few revolutions in the past, even back in the days of the ZX Spectrum when he created *Lords Of Midnight*, a game with millions of different locations. When *Midwinter* was released, the entire gaming world held their breath, which is understandable even now. A complete island complex housed an enormous strategy game unlike anything that ever came before it and still eclipses a lot of games. Take a tabletop wargame, add some fractally generated polygon landscapes and put yourself right in the middle of it.

Extremely daunting at first, with a 200 plus page manual and more locations and characters than were necessary, the game sold more than a few Amigas and caused more sleepless nights than anything since. It spawned two sequels, neither of which seemed to relive the majesty of the original, but what an original! It's still available on budget, so if you want something so challenging it'll make your brain explode, then you can't do much better than this.

93%



STRIKER – Rage

REVIEWED: JUNE 92, 94%

'*Striker* plays extremely well, and offers all the moves we have come to expect but within an excellent 3D play area. The players are extremely responsive, and perform their many kicks and passes with style and ease, and the computer opponents are set to tax the player as they work their way through the many teams on offer. *Striker* is the perfect complement to the Anco game, and vice versa. It has speed, addictiveness and myriads of options. It's a stunning debut by Rage and all *Striker* is missing are the half time oranges...' *Steve Merrett*

At a time when the whole world was *Kick Off* crazy, it made a lot of sense to release a soccer game of one form or another. Many were poor clones of *Kick Off*, most were just managerial games cashing in on the trend. Rage Software, previously known as Special FX, took the brave step of approaching the genre with a completely new system. Instead of viewing the pitch from above, a forced perspective was brought in with the player looking 'along' the pitch from behind their own goal. The same amount of the pitch was visible as *Kick Off*, and interestingly enough, it managed to scroll at much the same rate.

Most surprising of all was the fact that it played as well as *Kick Off*. The odd viewpoint still throws most people the first couple of times they play it, but you soon get used to it. The fact that it has now been a roaring success within the console market is a real testament to its playability. It hasn't even begun to date yet, so the mark remains right at the top.

91%

SENSIBLE SOCCER v1.1

REVIEWED: DECEMBER 92, 94%

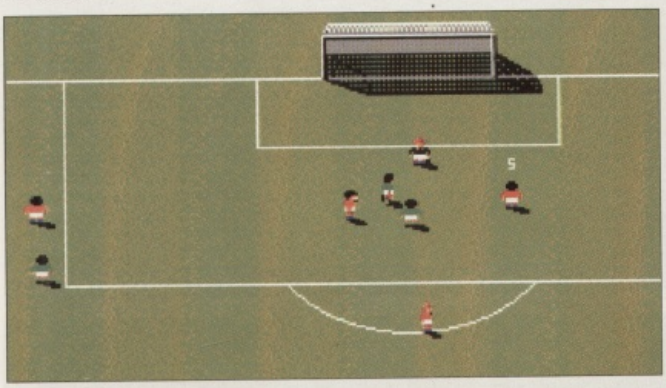
'I really cannot praise this update highly enough. Simply by conceding that the original wasn't perfect and actually doing something about it both Renegade and Sensible have scored well on my 'caring people' scale. However, whereas past enhanced versions of games (*Arkanoid*, *Xenon*, et al) have been minor remixes of old favourites, the additions made here are genuinely to the game's benefit. If you are one of the sad individuals who didn't buy *Sensible Soccer* first time round, then do so now – they don't come any better than this.' *Steve Merrett*

To recap, for those who need it, *Sensible Soccer* is Sensible Software's answer to *Kick Off 2*. Shamelessly, Jon Hare and co freely admit that they were heavily influenced when designing this game, which goes a long way to explain why there are so many similarities between this and Dino Dini's effort, such as the small graphics, the scanner, the complex control system and most of the rest of the game actually. Version 1.1 was for the most part a case of tiny tweaks and improvements, with some slightly better intermediate screens and what have you.

Two areas that were greatly improved were the referee intelligence and the goalkeeper control. The ref was watching most of the time now, dishing out cards a-plenty, while the computer controlled goalie were almost unbeatable. However, as they did behave 'intelligently', it was still possible to fool them, sending them the wrong way as you waltzed into the goal.

It's still as playable now, and has yet to be beaten really, so the mark still stands.

91%



TURRICAN 2 – Rainbow Arts

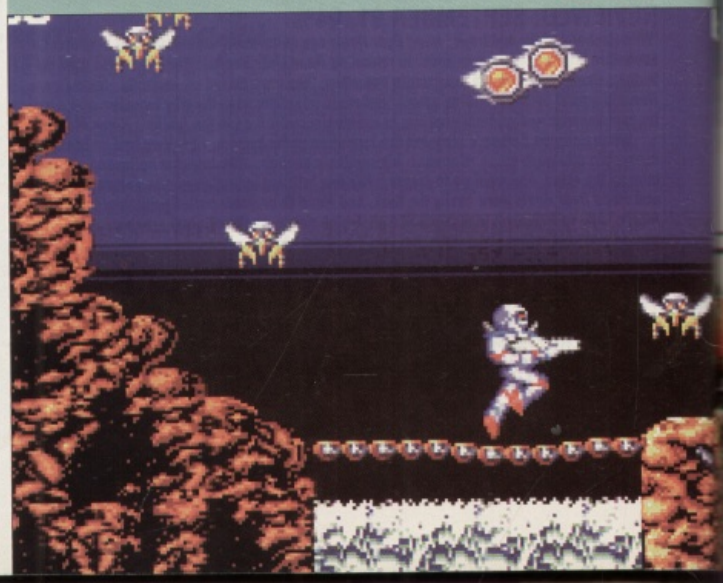
REVIEWED: FEBRUARY 91, 94%

'All the addictive shoot 'em up action that made the first game so enjoyable has been retained, yet somehow this new version seems fresh and different. The re-jigged aliens make for a real challenge, and although the power-ups are spread quite generously through the game, its difficulty level is pitched to make the game challenging without being frustrating or too easy. In all, *Turrican II* is another fine product from Rainbow Arts and a perfect follow-up to the superb original. It surpasses everything they went out to achieve and is a game that any self-respecting shoot 'em up fan should own.' *Steve Merrett*

At a time when everyone was striving to create arcade quality original action games, *Turrican* was standing head and shoulders above most of its contemporaries. Featuring full 50Hz scrolling and animation and stylish graphics, it looked great and sold even better. So it came as no surprise when a sequel was released. What was surprising was that it was even better. Although much of the game had a similar feel, and many of the original features were still there, the inclusion of bigger and better weapons, levels and bad guys made it all the more enjoyable.

Even now, when games that run in a frame are ten a penny, it's still huge fun to play and often gets loaded up here in the office at lunchtimes. A personal favourite of Dan's, the game hasn't aged at all, and can still give a lot of games a run for their money. A Superstar well worthy of the title.

95%



GOLF – Microprose
REVIEWED: DECEMBER 91, 94%

'*Microprose Golf* is a classic. It remains so because the game is as complete as it could be without you actually getting out there yourself and spoiling that Sunday afternoon stroll. If you play golf, it's a must. If you don't, then after just a few rounds on the Amiga, you'll be making enquiries down at the local club – and, whatever the outcome, Sunday afternoons will never be the same again.' *Garth Sumpter*

Sports games are generally well catered for. There are dozens of football, rugby, tennis and cricket games, but there has only been one or two decent golf games. *Leaderboard* and *Links* have always been firm favourites, but there have been ten times as many duff ones. *Microprose Golf* is without a doubt the best one to ever appear, and a game that I still play on a weekly basis. Like the real thing, you just can't get tired of moving around the greens and fairways, trying different combinations and approaches. There are stacks of options to tailor the game to your liking, a whole selection of different tournaments and challenges to play, plus six different courses and all manner of computer opponents. Thanks to the polygon graphics, the courses all look significantly different, and the fact that its a simulation rather than a computer version of the sport means that anyone who has ever picked up a club will find their way around these fairways instantly. One round on this, and you'll never say golf is dull again.

SOCCER KID – Krisalis
REVIEWED: SEPTEMBER 93, 93%

'*Soccer Kid* is an immense game and lots of fun to play. The action is relentless, there are plenty of pick-ups and bonuses to collect (essential in this kind of game), and the graphics and animation are superb. Best of all, the ball bounces around the screen in a highly realistic manner. Surprisingly, this wasn't much of a programming challenge, but it looks impressive nonetheless. From Soccer Kid's cheeky grin cuteness to his amazing ball handling expertise this game shouts class. It's definitely a contender for one of this year's top 10 games, if not the top spot itself.' *John Mather*

Platform game heroes have always had strange powers, but what about a game where the star is a keen football fanatic who is rarely seen without a ball at his feet? That's exactly what Krisalis created when they came up with the idea of *Soccer Kid*, and it's a novel twist that saw the Kid rising through the charts as everyone agreed with John Mather's wise words. An extremely playable platform romp, *Soccer Kid* had you controlling the Kid across dozens of levels, using his amazing ball control to propel a small leather sphere all over the screen, as well as adapting it slightly to increase his jump height and running speed. There's far too much to go into here, but take it from me, it's great!

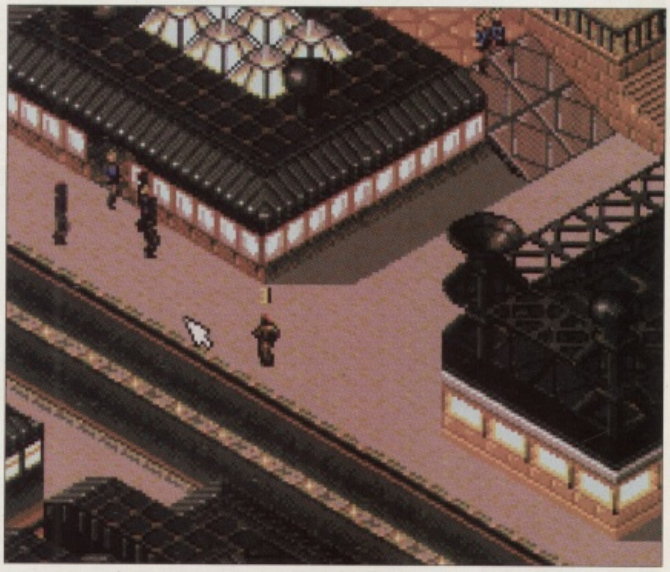
MONKEY ISLAND 2 – Lucasfilm
REVIEWED: JUNE 92, 95%

'*Monkey Island 2* has genuine wit and oodles of charm. Fine tuned to perfection, everything is up-front for all to see, hear and read. The story alone should keep you gripped to the very last word. *LeChuck's Revenge* is truly a masterly mix of wacky humour and stunning images. I'm a massive fan of adventures and I can honestly say that they just don't come any better than this.' *Rik Haynes*

The Secret Of Monkey Island 2 is a game that Lucasfilm had been working towards from the moment the company was formed. One of the finest graphic adventures to date, it tells the tale of one Guybrush Threepwood as he searches for the biggest treasure of all – The Big Whoop. On the way he meets many of his adversaries from the original *Secret Of Monkey Island*, along with all his old pals such as Elaine Marley and the Voodoo Lady. It's big, it's tough and it's a classic.

But it did come out over a year ago, and things happen quickly in the adventure business and any of the game's most popular aspects have been improved upon since it's release. For example, Lucasfilm's new masterpiece, *Day Of The Tentacle*, has ten times the humour and ten times the complexity of this, while offering a more user friendly control system. It's still a lot of fun to play, and still as challenging as it was, but better games are appearing now, so it loses a couple of points.

91%



SYNDICATE – Bullfrog
REVIEWED: JULY 93, 94%

'This is the game I've been waiting for for years. No holds barred, full-out megadeath violence. No morals, no prisoners, just grab the biggest sod-off gun you can find and total a town. The only thing this game could be compared to is a real time version of *Laser Squad*, but then that's in the loosest sense of the word. I only have one real criticism. When you walk into a building you can't see what's going on. The only way to keep track of the action is to use the scanner and move the cursor around the general area as it changes shape when it's over another person. Apart from that this is one of the best games I've played in years. The sheer size, violence and huge amounts of action makes for totally addictive gameplay. Put all other purchases on hold, this is an essential buy.' *Mark Patterson*

Bullfrog, obviously getting a little bored with Gods and villages, moved forward in time with *Syndicate* and created a chilling gangland scenario that was so violent, it had to be toned down for public consumption. Take your agents downtown and complete a series of fifty mission, destroying buildings, people, cars and just about anything that moves. Using a system upgraded from the *Populous* 3D engine, this atmospheric strategy blast is quite unlike anything else, and begs to be exploited by the bandwagon jumpers in the industry. Like Mark said, it's an essential buy.

94%

WIN AN INSTANT GAMES LIBRARY!

It's not every day that you get to win an instant games library but that's what's on offer in this truly amazing competition. We've teamed up with The Hit Squad, purveyors of fine-quality budget-priced games, to offer one lucky winner their entire back catalogue. Yes, that's right, every single Hit Squad title could be yours!

So how can you get your hands on this mountain of top-notch software? Easy! Simply study the 10 screen shots on the opposite page, see if you can figure out which games they are from, and then write down your guess for each one beneath the appropriate picture. Then clip out the coupon and mail your entry to: GAMES BONANZA, CU Amiga, EMAP Images, 30-32 Farringdon Lane, London, EC1R 3AU. Well, what are you waiting for?!

HIT SQUAD CHECKLIST

Over the years, the Hit Squad label has established itself as the premier budget label, pumping out a steady stream of top-quality Amiga games at bargain basement prices. And our competition lets you win the lot! So here, checklist chums, are all the games you can win in our rather groovesome compo.

The following titles all cost £7.99

- ☐ Afterburner
- ☐ Altered Beast
- ☐ Arkanoid II
- ☐ Badlands
- ☐ Batman the Caped Crusader
- ☐ Batman The Movie
- ☐ Beach Volley
- ☐ Bubble Bobble
- ☐ Cabal
- ☐ Castle Master
- ☐ Chase HQ
- ☐ Crazy Cars
- ☐ Dragon Ninja
- ☐ Daley Thompson Olympic Challenge
- ☐ Escape from the Planet of the Robot Monsters
- ☐ Fun School 2
- ☐ Ghostbusters 2
- ☐ Head Over Heels
- ☐ Ivanhoe
- ☐ Jack Nicklaus Golf
- ☐ Last Ninja 2
- ☐ Lombard RAC Rally
- ☐ Midnight Resistance
- ☐ NARC
- ☐ Navy Moves
- ☐ New Zealand Story
- ☐ Nightbreed Arcade
- ☐ Operation Wolf
- ☐ Pang
- ☐ Platoon
- ☐ Power Drift
- ☐ Predator
- ☐ Puzznic
- ☐ Rainbow Islands
- ☐ Rambo III
- ☐ Red Heat
- ☐ Renegade
- ☐ RoboCop
- ☐ R-Type
- ☐ Run the Gauntlet
- ☐ Shadow Warriors
- ☐ Sly Spy
- ☐ STUN Runner
- ☐ Super Hands On
- ☐ Total Recall
- ☐ Untouchables
- ☐ Voyager
- ☐ Wizball
- ☐ Pictionary
- ☐ Test Drive II
- ☐ Trivial Pursuit
- ☐ Prince of Persia
- ☐ Hudson Hawk
- ☐ RoboCop 2
- ☐ Smash TV
- ☐ Pitfighter
- ☐ RBI 2
- ☐ Terminator 2
- ☐ Pro Tennis Tour

The following titles all cost between £9.99 and £12.99.

- ☐ Strikefleet
- ☐ 4th & Inches
- ☐ The Simpsons
- ☐ Populous and the Promised Lands
- ☐ WWF
- ☐ 688 Attack Sub
- ☐ Budokan
- ☐ The Cycles
- ☐ Addams Family
- ☐ Hard Nova
- ☐ Gunboat
- ☐ The Immortal
- ☐ MIG-29
- ☐ Chase HQ 2
- ☐ Hardball
- ☐ Mean 18
- ☐ Toki
- ☐ Shadowlands
- ☐ Grand Prix Circuit
- ☐ Hard Drivin' II
- ☐ Super Space Invaders
- ☐ Hook
- ☐ Blue Angels
- ☐ Parasol Stars
- ☐ Indianapolis

THE RULES

1. This competition isn't open to employees of EMAP Images or Ocean Software.
2. The closing date for entries is February 28th, 1994.
3. The editor's decision is final.
4. No correspondence will be entered into.
5. There can be no cash alternative.

HIT SQUAD COMPO

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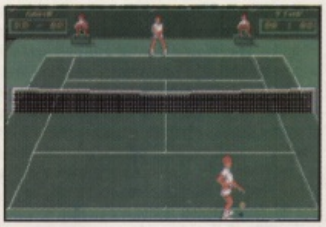

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I'd like to win a mountain of software, so I've written down the names of the 10 games which I think you've taken the screenshots from.
If, by some miracle, I should actually win the competition, please send my prize to:

Name: .....

Address: .....

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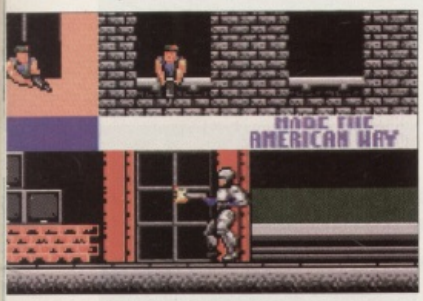
City .....Postcode .....

Budget Games

When money's too tight to mention, why not turn to the burgeoning budget sector and check out some of the cracking games on offer at knock-down prices. Here's just a few of the many bargains to be had...



ROBOCOP

The first really successful movie license, *Robocop* was the first Ocean game to utilise the now-overused mixture of puzzle and arcade sequences. Stepping into the metallic insoles of ol' chrome dome himself, players must blast their way through a rogue's gallery of bad guys until reaching the end of level for a face-off against a larger guardian. Alternating between these arcade sequences, though, are a series of puzzles, ranging from a cross-hair-based shoot 'em up scene to a photo-fit sequence, where Robo must identify a particular felon. The mixture is a little dated now and the action repetitive but, on the whole, Robocop is still a playable blaster – if a little on the easy side.

HIT SQUAD £7.99 60%

OPERATION THUNDERBOLT

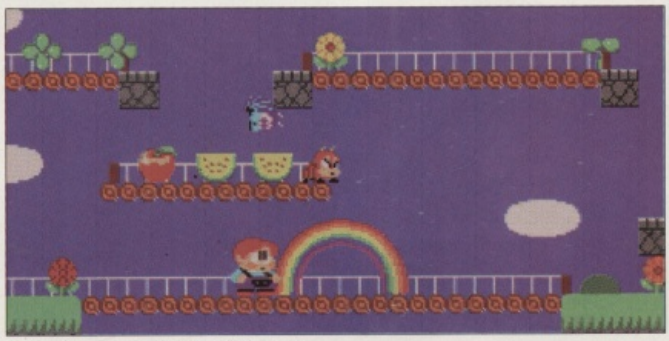
After a dodgy conversion of *Operation Wolf*, fans of the series were relieved when the sequel was almost identical to its arcade parent. *Operation Thunderbolt* combines the sideways-scrolling action of the first game with a forward-scrolling section which has since been much-copied in games such as *Space Gun* and *Line of Fire*. Once again, we are in 'rescue the hostages' territory, as the player and a friend attempt to blast a path through to the escape plane at the end of the game. All manner of extra weapons are thrown at you, and must be shot to deflect them and the assailants blown away. The one major fault with *Op Thunderbolt* is that initially the player is left without a gun-sight, making aiming very difficult indeed, but when the laser device is found all is soon rectified and the action can really get going. A superb conversion which has stood the test of time.

HIT SQUAD £7.99 80%

GHOULS 'N' GHOSTS

This sequel arrived in its Amiga form before Elite's conversion of its forerunner, *Ghosts'n'Goblins*, and far exceeded it in every respect. Retaining the 'run and jump' action of the original, *Ghouls* has a larger and more varied play area, with a whole host of zombies, magicians and vultures impeding your progress. The storyline recounts how Arthur the Knight's babe has been kidnapped by Satan himself, and whisked away to his demonic lair. Armed only with a handful of lances and a suit of armour, you must steer Arthur through the game's six levels until you get a chance to kill off Satan and rescue your girly. This action then proceeds through platform-filled towns and areas, where Arthur can collect extra-weapons to aid his progress. Graphically, although they are tiny, *Ghouls'* sprites are well-drawn and detailed, and the backdrops are of an even higher standard. In addition, supporting the action are six of the best tunes you'll ever hear on your Amiga – all of which are courtesy of Tim Follin.

KIXX £7.99 90%



RAINBOW ISLANDS

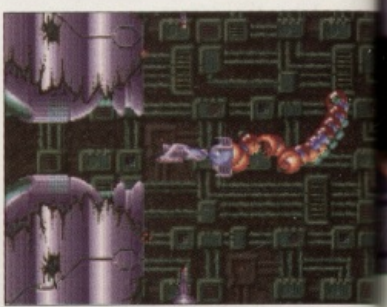
This is quite simply the best budget game you are ever likely to see. Graftgold's near-perfect conversion of the Taito coin-op is a seven-level platform affair, starring the ever-so-cute Bub as he tries to clamber to the top of the screen. The levels are based on set themes, such as Vampires, Toys and Armies, and along the way, numerous theme-related nasties leap out at our dungaree-clad hero. Pressing the fire button, however, launches Bub's secret weapon – a deadly rainbow. Not only do these kill nasties, but they can also be used to climb across previously inaccessible areas. With loads of bonuses, arcade-quality graphics and some of the most addictive gameplay you'll ever witness, *Rainbow Islands* is quite easily a contender for the best Amiga game of all time. Everything about it is stunning, and I find it impossible to fault.

THE HIT SQUAD £7.99 95%

THE UNTOUCHABLES

Once again, Ocean used their combination of game styles to create a neat package, and all credit to Special FX for creating a moody and atmospheric game. As Eliot Ness, leader of a tough band of law-enforcers, the player is left to complete seven arcade sections before Al Capone is finally put behind bars. Starting in a warehouse, where Ness must locate bottles of booze whilst avoiding the bullets of patrolling hoods, the game closely follows the film's plot as the player progresses. These scenes take the shape of an *Op Wolf*-style roof-top shoot-out and a really clever pram sequence, where Ness must steer the pram and its infant contents to safety whilst plugging Capone's cronies. All seven sections play really well, even if the first two are a little long.

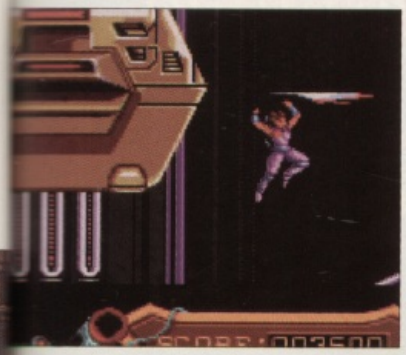
HIT SQUAD £7.99 81%



Z-OUT

As a budget release, this is an absolute steal. Rainbow Arts' five stage blaster nicks ideas from virtually every shoot 'em up ever released, but rises above the competition thanks to its utterly addictive gameplay. It's back to the *R-Type*-style gameplay, as the levels unveil their Gigeresque aliens and underwater creatures, with all the usual beam weapons and missiles you'd expect to see. However, whereas *R-Type* stuck to one pattern, by borrowing ideas from other blasters, larger space ships appear and must be blasted bit by bit, and the enemy waves attack in a manner more accustomed to the likes of *Xenon II* and *Scramble*. Add to this some of the most breath-taking graphics the Amiga has seen, and it's the final cherry on an already succulent cake. Everything about *Z-Out* is brilliant: it's fast, it's graphically superb, and it's only eight quid!

KIXX £7.99 84%



STRIDER

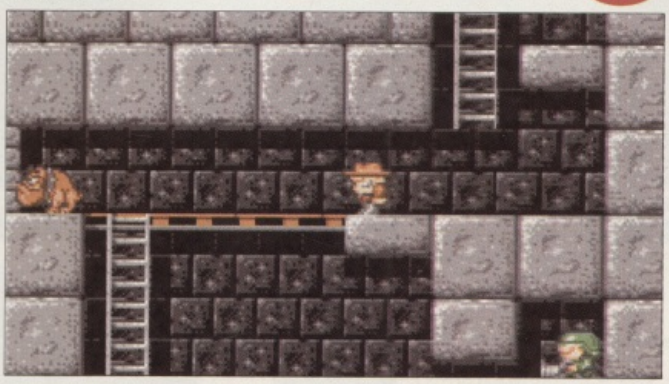
Although Tiertex's Capcom conversion contains virtually everything from the all singin', all leapin' coin-op, it still lacks that certain something to keep the player's attention. Set in a Russia of the future, Hru Strider must run and jump his way through an evil Tsar's bio-metallic base, using his trusty sword to cut a path through to the guardian who awaits at the end of each stage. The levels are varied and interesting, with a large selection of gun turrets and baddies, and the assorted stages take the player through Amazonian-style forests and the wintry wastelands of Siberia. The main plus about *Strider* is that the game is easy to play, with extra weaponry and power-ups adding to the fun. However, there is a feeling of luck rather than skill as progress is made, and the loss of life is often down to the illogical actions of the aliens rather than the fault of the player. It's debatable if the game will keep your interest for long.

KIXX £7.99 55%

RICK DANGEROUS

Firebird's square-jawed hero's debut gets another airing, and he's just as fresh as when he first appeared. Basically an extension on the popular platform genre, *Rick D* takes an Indy-style scenario set over five stages and mixes in some of the most devious traps and pitfalls you are ever likely to encounter. Graphically, the game is excellent, with squat and detailed sprites set against deliberately bland backdrops – which even feature a black and white mode for B-movie buffs. The five levels are incredibly tough, with loads of natives and Nazis to shoot, prod, or blow up, and a series of secret rooms await your attention. *Rick D* is one of the best platform games I've ever played, and is an absolute steal at such a low price.

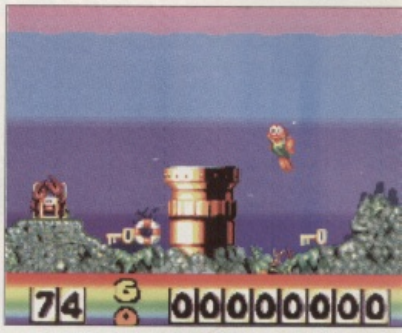
KIXX £7.99 91%



PANG

A real rarity in the arcades, *Pang* is a rather spiffy shoot 'em up with a difference. Cast as a big game hunter, your prey is a series of bouncing balloons which must be popped by shooting them. Contact with any of them, though, proves fatal, and as the game progresses, the levels are gradually cluttered with extra platforms and ladders to hamper your manoeuvrability. In addition, a series of creatures scamper hither and tither, and will temporarily disarm the hunter. Extra power-ups add to the 'pop'-tabulous fun, and can double your firepower or extend the strict time-limit slightly. I must admit that I'm a real *Pang* fan. It's not the best fast-paced game I've played and some of the earlier levels are a little tedious to have to play through, but it's addictive in its own funny way, and contains that all-important germ of gameplay to keep you interested.

HIT SQUAD £9.99 90%



JAMES POND

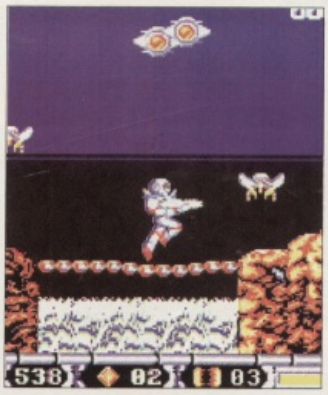
Before there was *Robocod*, there was *Pond... James Pond*, and whilst the games are radically different in style, Millennium's first aquatic outing is still fun to play. Minus the extending midriff powers of the second game, Pond is out to stop the evil Doctor Maybe from polluting the world's oceans and killing off all of our hero's chums with deadly toxins. Thus, in a series of scrolling arcade/adventure missions, James is out to thwart the plans and stop the tainting of the seas. All this is achieved via a series of object-related puzzles which gradually allow Pond to access additional stages in the game. Unfortunately, though, the pollution is affecting the sea-life who consequently turn on the aquatic agent. A bit slow in places, *James Pond*'s major problem is that its sedate pace makes it rather too easy to solve. None of the nasties prove any real hassle which, whilst not doing anything for the game's lasting appeal, may make it worthy for the younger player.

GBH £7.99 53%

PRINCE OF PERSIA

When Domark originally released this in December '90, it breathed new life into the platform genre. Up until then, the platform game had become stale and bland, with numerous contenders to the Mario throne disappearing without a trace. *POP*, however, went completely the opposite way and created a game that even console owners went green at. Controlling one of the most athletic and superbly-animated sprites ever, the player was given the task of exploring a series of trap-laden levels in search of your kidnapped girly. Set against a tight time-limit, the game is the Amiga's equivalent of an Errol Flynn movie: it has sword-fights, grisly ends to the unwary traveller, and jumps that require pixel perfect positioning. Of course, all this has been tried before, but none have put them together with the panache that Broderbund's coding shows.

THE HIT SQUAD £7.99 86%



TURRICAN 2

Comprising elements of nearly every Amiga shoot 'em up, *Turrican II* is a supreme blast which still outstrips most of its full-price rivals. Although not boasting a great deal over its predecessor, the sequel sports improved graphics and effects, whilst retaining the run'n'shoot scrolling action of the original. In addition, it also takes the opportunity to expand our tin-plated hero's armoury, and adds numerous new bombs, lasers and effects. For those of you not familiar with the series, then this is your perfect chance to get acquainted. Tighter level design means each level offers a fairly stiff challenge with loads of secret blocks and rooms waiting to be discovered.

KIXX £7.99 82%

SHADOW WARRIORS

Slightly overshadowed by the release of *Total Recall* first time round, *Shadow Warriors* is a playable conversion of the popular Taito coin-op. Starring two lithe Ninjas, the player(s) have been given the task of infiltrating a drug runner's base in an assassination mission. What separates *Shadow* from the countless other martial arts games available is the flexibility of the characters and their surroundings. Whilst many games purport to let the player fully interact with trees and walls, *Shadow Warriors* allows players to swing from the lampposts, uproot telephone boxes and kick people into or against walls. As the duo progress, their surroundings change from streets to swamps and eventually into Mr Big's lair, and all boast an army of sprites out to halt your progress. Although it's by no means the ultimate conversion, it makes *Double Dragon*'s Lee brothers look like Hinge and Bracket.

HIT SQUAD £7.99 61%

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VIDEOMASTER

Music

New

Clarity16

version 1.5

Clarity16 is our premier, professional sound sampler allowing rates up to 32KHz in 16 bit stereo and up to 48KHz in 16 bit mono on a standard Amiga; accelerated machines can handle faster sampling rates.

The software provides extensive features including full edit control, a MIDI keyboard emulator, a sample sequencer, many special effects, FFT analysis and much more.

New Version 1.5 has an up-to-date Workbench 3 look, in its own window and includes many enhancements allowing full compatibility with faster Amigas.

Megalosound

New

Our brand-new, 8-bit stereo, direct-to-disk budget sampler is now shipping.

The Megalosound software is packed full of easy-to-use editing features, special effects and extras such as the ability to print waveforms and sample information.

The package allows sampling up to 84KHz mono and 56KHz stereo to memory and up to 21KHz stereo to hard disk on an A1200. Supplied with a hardware volume control and an extensive 144-page manual, Megalosound is impressive value at only £34.95.

Pro-MIDI Interface

This interface allows you to connect a MIDI system to any Amiga computer via the serial port of your machine using a single multi-core cable. The interface sits conveniently next to your computer and provides MIDI In, Thru and two Out connections. Pro-MIDI is compatible with all leading Amiga MIDI software and comes complete with a miscellany of MIDI PD utilities on disk.

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VideoMaster combines the beauty of a video digitiser, the fun of a sound sampler and some superb sequencing software to provide a true *Multimedia* system that is a joy to use. This is the *one* package that you need for producing high quality stills & 25 frames/second movies with sound!

New A1200/A600 version. Previously, only A500 owners have been able to take advantage of VideoMaster; now A1200 and A600 users can work with this amazing package and enjoy brand-new features such as superb HAM 8 (A1200 only) and 640x512 digitised stills and 160x100 25 *frames per second* monochrome video with sound. VideoMaster AGA plugs into the PCMCIA slot thus leaving your Amiga free for further expansion.

ColourMaster

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To complement the VideoMaster system, we have developed a high quality RGB colour splitter which allows you to automatically digitise full colour movies/stills, directly from the VideoMaster software. The splitter is packaged with VideoMaster RGB.

The picture above is an un-retouched shot taken outside Microdeal's offices with a Panasonic camcorder and digitised with ColourMaster and VideoMaster AGA, all within a few seconds!

MegaSound

ColourMaster

Prices

Clarity16	*£149.95*
Megalosound	*£34.95*
Pro-MIDI Interface	*£24.95*
VideoMaster AGA	*£79.95*
VideoMaster RGB	*£139.95*
ColourMaster	*£69.95*

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TOKI

Ocean France have come up with some real corkers in the past, and their conversion of the *Toki* coin-op is spot on. If you're a fan of the original arcade machine, then you'll absolutely love the Amiga version as it's an almost identical pixel-by-pixel recreation. Levels include a cave-like world, an underwater stage, a jungle, an underground inferno and a heavily fortified prison. You're only armed with globules of spit to begin with(!), but there are five different types of shot available, including triple-fire and a neat flame-thrower effect that sends your victims to a fiery grave. Everything's against the clock, though, so you can't waste too much time exploring each level. Graphically, this is just like the coin-op, although the sound is a bit of a let down and the in-game tune is positively grating after a while. Action-wise, this is a well-paced platform game, with plenty of obstacles to overcome and some highly inventive nasties – look out for the swinging apes and huge end-of-level monstrosities. Easy to play but difficult to complete, *Toki* is a polished game. It might be three-years old, but it's up there with the best.

HIT SQUAD £9.99 81%

SMASH TV

If you like your games coated in an extremely violent veneer, then *Smash TV* should be right up your street. Mix shoot 'em up action with a team of baseball-wielding thugs and you've got a good idea about what to expect here. The action comes thick and fast as you take control of a contestant in an ultra-violent futuristic game show. The aim is to collect as many different prizes as possible (such as videos and toasters) while avoiding an army of mutant psychos who are after the greatest prize of all... your life! The graphics aren't up to much and the in-game sounds are rather tinny, but for a mindless blast this really can't be beat. Each room is packed full of prizes, mortars, explosives, laser emplacements and hidden bombs, and before you know it the screen is flooded with the aforementioned thugs who won't rest until they've battered you into a mushy pulp. Armed with a paltry machine gun to begin with, there are various power-ups scattered around each room which can transform your weapon into a slice'n'dice death machine. After working your way through a number of screens, you come up against larger bosses and that's when the fun really starts!

HIT SQUAD £7.99 76%

LOTUS 2

Lotus Esprit Turbo Challenge was the game that really made Gremlin Graphics the force it is today. *Lotus 2*, featuring the Lotus Elan, merely strengthened the reputation of the original. Rather than race around a series of looped tracks as part of a league, you have to make your way across eight long courses, taking you over the snowy mountains, through the dark night city streets, across a desert and even along a motorway where it's a little too easy to career into the wrong lane and get hit by oncoming traffic! The varying conditions can pose a real problem – try anticipating a sharp right hand turn in extremely foggy conditions – and so add to the game challenge greatly. *Lotus 2* features the same single and double player modes of the original, with the big difference being that in solo mode the player gets a full-screen view of the road. Add to that the fact that you can link up two machines and play with a total of four players, and you have one excellent excuse for phoning your mates! The sprites are slick and convincing, as is the scaling of objects from horizon to foreground. In fact, the overall impression of speed can be quite overwhelming, particularly on the fog and snow tracks. An exciting race game with more than enough in the way of challenge and variety. At this price, you'd be a fool to miss it!

GBH £9.99 91%

STORM MASTER

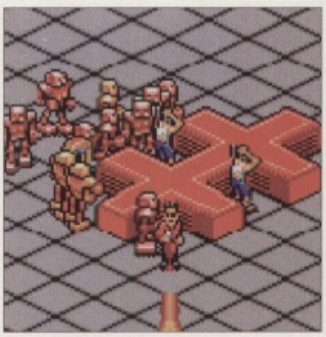
Storm Master combines an unusual scenario, some excellent graphics and an easy-to-learn control system into an absorbing game. The player is cast as the new ruler of the wind-swept realm of Eolia, which is in the middle of a war with its neighbour Sharkaania. The main aim is to destroy Sharkaania's seven cities, whilst preventing them from destroying yours. Every decision that's made in *Storm Master* has a long-term strategic consequence, so you'll have to think carefully before clicking. Once battle commences you can choose to take control of the flying ships you've constructed in a 3D combat sequence using crossbows and catapults. Normally this part of a strategy game is very weak, but here the action is thick and fast. The attention to detail and overall playability are superb. The game looks good and demands a lot of deep thinking if you're to succeed.

GWP £2.99 82%

ESCAPE FROM THE PLANET OF THE ROBOT MONSTERS

Winner of the 'Longest Game Title Ever' award, *Robot Monsters* is a spoof of countless space-based B-Movies, and pits two heroic fighters against a mass of manic robots. Played across a series of isometric zones, the game is basically a shoot 'em up, as the two laser-toting heroes blast their way through the scrolling areas, in search of an exit. Along the way, they run the risk of getting impaled, electrocuted and shot, all of which are depicted in brilliant cartoon style.

HIT SQUAD £7.99 72%



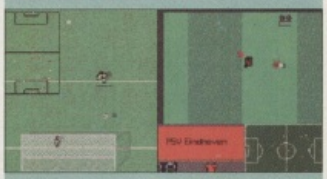
GAME COMPILATIONS

Representing incredible value, games compilations can be an absolute steal – but only if you like every game that's included. Unfortunately, many publishers will bundle a couple of excellent games with a complete stinker, thus lessening the appeal of the pack. But it's not all doom and gloom, as there are still some excellent bargains to be had.

SPORTS MASTERS
EMPIRE £29.99
TEL: 081 343 7337

Here's an easy way to get fit without having to go through all that trouble of learning a sport, practising until you become good at it and all the other pointless effort some people put themselves through. Sports Masters from Empire is all you need to become a top footballer, golfer, tennis player or Indy driver like Nigel Mansell. *PGA Tour Golf* is probably the best known game on here, and that's simply because it's one of the best all round golf titles ever. Three courses, graded difficulty levels and some really smart graphics keep it as worthwhile as it was the day it came out. *Indianapolis 500*, while not being the most detailed racing game around, is definitely one of the fastest, and features a unique Instant Replay feature, letting you see some of the most mental smashes ever from a variety of angles. Infogrames' *Advantage Tennis* is probably as hard as the real thing. Fast and smooth, you've got your work cut out just trying to keep your eye on the ball, let alone try and hit the thing! The only duff game in here is *European Championship '92*, but what does it matter? You're still getting three great games for a tenner apiece!

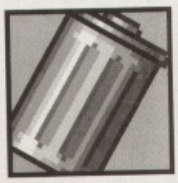
SOCCER STARS
EMPIRE £25.99
TEL: 081 343 7337



If you're football crazy, football mad, then this could be the best compilation 'that you've ever had'. Four arcade soccer titles, ranging from the superb *Kick Off 2* to the thoroughly awful *Gazza 2*. In fact, now I come to think of it, *Microprose Soccer* and *Emlyn Hughes International Soccer* are fairly bad too. Oddly enough, both of the last two were really, really good on the old Commodore 64, but failed to make the grade when converted over to the Amiga. *Microprose Soccer* was the first football game to feature that now standard top view, while *Emlyn Hughes* features the then standard side view and an interesting player stats section. *Gazza 2*, on the other hand, is really awful. Tiny sprites, no playability and a completely duff license. But then we come to the star of the show – *Kick Off 2*. We all know how good it is, and you don't really need me to tell you that it's one of the best soccer games ever, and the one that really makes this compilation.

TOP OF THE FLOPS

The most abysmal Amiga games of all time!



IN THE BIN

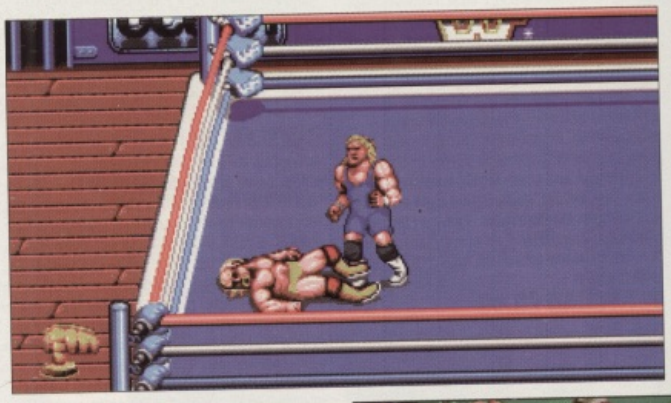
The Amiga has played host to some of the most amazing ground-breaking games ever published. Unfortunately, it's also had more than its fair share of absolute howlers. This is their story and its not a pleasant tale...

WARNING:
Those of a nervous disposition or weak constitution should skip the next few pages, for here you'll find a collection of some of the worst computer games ever published. Believe us, you'll be heading for the sick bag before you know it!

We've all done it – gone and forked out a small fortune for a new game only to race back home, load it up and realise that what we've bought is the computer equivalent of a steaming heap of horse droppings! In everyone's game collection there's bound to be one or two complete turkeys, so bad that you hide them away in the dimmest recesses of your bedroom (next to the Nick Berry records and the Work Out with Anneka video). For every *Frontier* or *Speedball 2*, there's a treasure trove of trash, a veritable mountain of mediocrity just waiting to be (unfortunately) discovered. With more full-price Amiga releases than ever before and a burgeoning budget market, it's all too easy to fall into the 'tripe trap' and purchase a complete dodo of a game. But fear not, as the CU Amiga team are here to steer you clear of the worst excesses of digital diarrhoea.

HORROR MOVIES

Let's start by taking a look at a genre that's choc-ful of chunder – yes, you guessed it, movie licenses. Although these are less frequent on the Amiga than they used to be, companies still attempt to push the latest blockbuster movies and, in an effort to cut costs because they've already forked out a mint for the license, put out any old crap, hoping it'll sell on the back of the movie's publicity. The roll call of calamities includes such 'gems' as *Fright Night, Moonwalker, Jaws, Pink Panther* and *The Munsters* – pathetic one and all.

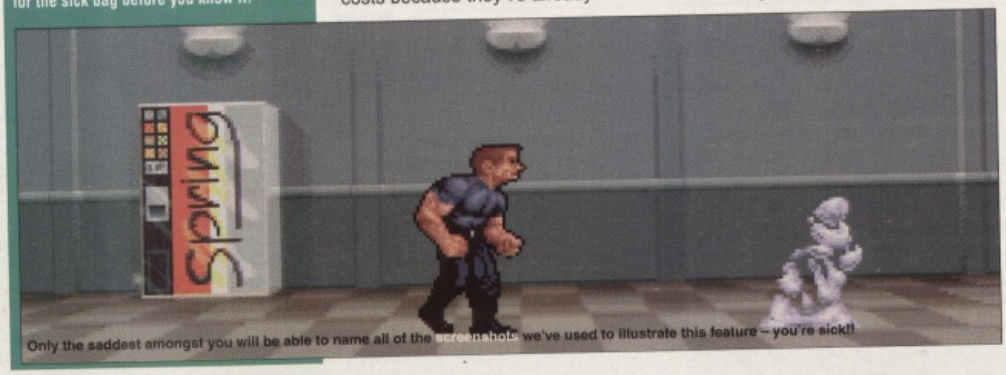


You really wouldn't want a ring-side seat to experience this piece of drivel...

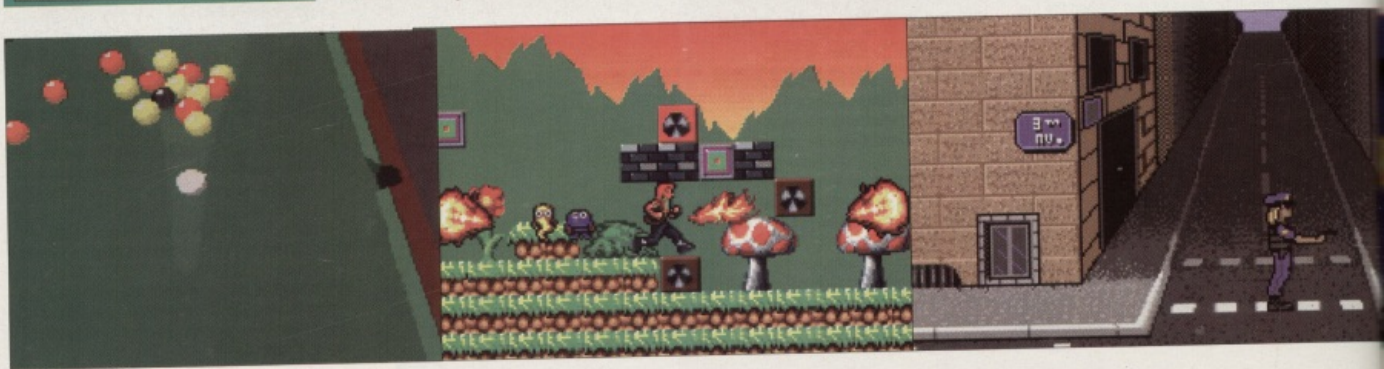
Of these, Microdeal's *Fright Night* must get a special mention as it was obscenely awful in almost every respect. The actual Fright Night films are fairly enjoyable affairs, but the game was a travesty. Written by industry veteran, Steve Bak, it involved guiding a huge, apparently tip-toeing vampire sprite through a sprawling mansion, jumping on people and sucking their blood, and...er, well, that's it! Basically, *Fright Night* was set within a six-room house, and all the player had to do was pounce on the unfortunates wandering around it. Just to add a little variety to the proceedings, bats attacked the main sprite every now and then (which is odd, as the 'hero' was a vampire in the first place), and the only real goal was to score as many points as possible by biting people before your energy expired.

Soccer sim meets pinball magic – not!

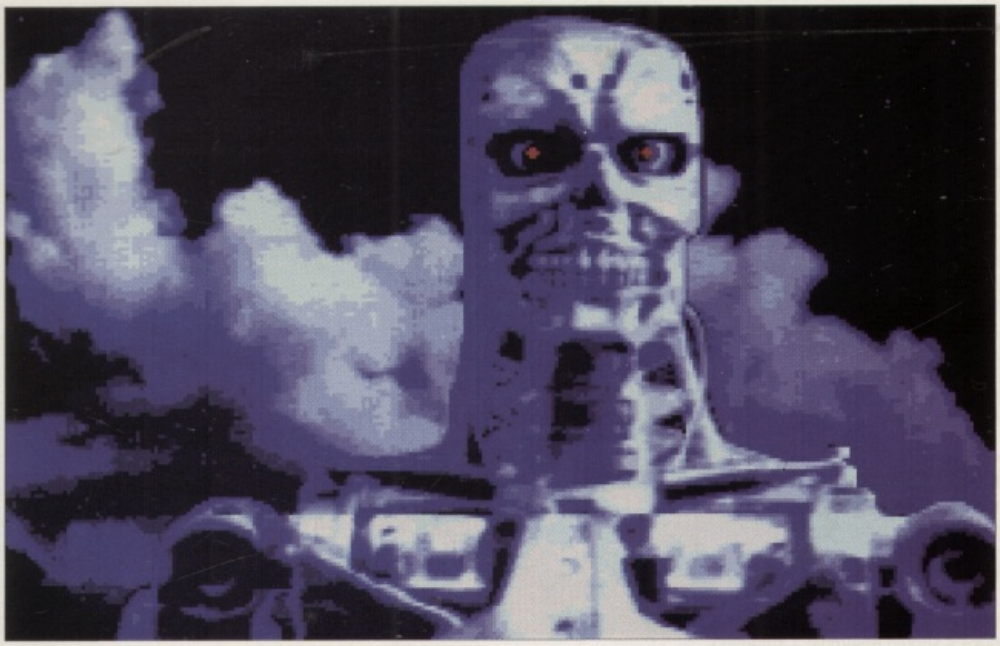
US Gold have also made forays into the movie tie-in world, but got their fingers badly burnt when they picked up the license to Michael



Only the saddest amongst you will be able to name all of the screenshots we've used to illustrate this feature – you're sick!!



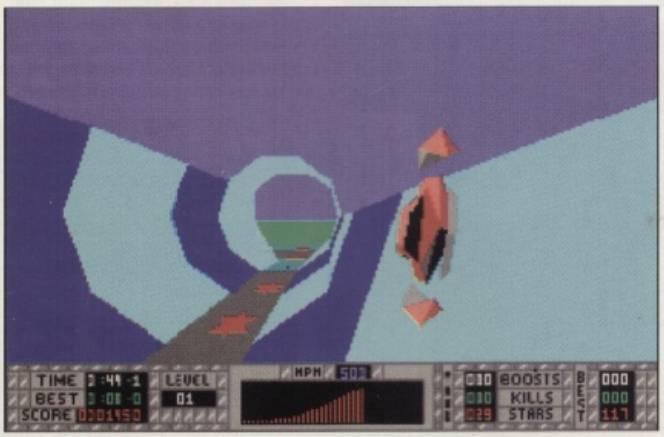
This game should definitely have been termi-



Jackson's Moonwalker. The film itself was a ludicrous ego trip, but at least it could fall back on the music and special effects. Stripped of these, the game was a terrible mish-mash of maze and shoot 'em up action. It started with Michael's young mates in peril (how very prophetic!) as an evil Mr Big whisked them away. Driven by jealousy or whatever, a crap maze section similar to *Pacman* unfolded as Mikey changed into a rabbit and tried to avoid two fat gits on motorbikes - hmmmm. Well, things then go from bad to worse as Mike turns into a robot for a scrolling blast affair which proved virtually unplayable thanks to collision detection which was dodgier than his current alibi, and sluggish controls – and the game culminates in a final slow-moving battle with Mr. Big himself. The question must arise as to why USG bothered at all.

Other dreadful licenses include Mindscape's *Captain Planet* (which quickly became known as Captain Janet around the office because of its wimpy gameplay and 'eco'-consciousness), Titus's *Dick Tracy* and US Gold's *Godfather* game. The last in the list deserves special mention. When you consider that Francis Ford Coppolla's films are steeped in atmosphere and feature a number of set-piece action sequences, they should have been ideal conversion fodder. So what did we get? Another platform game and not a very good one at that. Admittedly, it looked the business, with lush 32-colour graphics, smoky streets, plush apartments – it had them all, but someone forgot to include the gameplay – it played like a brick. In fact, it wasn't a million miles away from both *Dick Tracy* and the equally-interminable *Crime Does Not Pay* – i.e. your character walks along and shoots people. Ad lib to fade. Just to keep you awake between stages, though, an *Operation Wolf*-esque scene interrupted the shooty bits. Hardly up to the standards set by the three films – and the game had about as much in common with the film as Shaq O'Neil has with Ronnie Corbett.

Even a game of tiddlywinks is faster paced than this sorry conversion...



COIN-OP CATASTROPHES

Arcade conversions have fared no better than their movie-based counterparts.

If you think about it, its pretty obvious that you're not going to be able to effectively replicate the latest arcade wonder on an Amiga. What you end up getting for your thirty quid is a barely recognisable conversion with half of the original features missing! Such was the case with Domark's *STUN Runner* conversion. The coin-op was a visually stunning, fast-paced affair that required fast reflexes to navigate the twisting bends of a sci-fi race track. The Amiga-equivalent was, in comparison, like taking charge of a souped-up zimmer-frame with all the pace of a speeding snail. The slow frame rate meant that the once thrilling hairpin bends of the corners were as exciting as a Beetle Drive at the local Derby and Joan.

Another botched conversion by the same company was *Skull & Crossbones*. Based on an already tawdry coin-op, the Amiga conversion managed to be even worse. *Skull* featured the wobbliest sprites seen since the earliest days of the Spectrum and the gameplay was so pedestrian and linear that if you played past the first level you were obviously the sort of person who enjoyed pain to such an extent that dodgy Dutch film-makers would be knocking on your door with a film contract.

Then there were the Laserdisc conversions. Never had so little gameplay been spread across so many disks. First there was *Dragon's Lair*, a stunning looking »

Is there no justice in the world...?

» game featuring real full-screen cartoon animation that had Amiga owners slobbering with glee – until they tried playing it. This game was responsible for the destruction of more joysticks than every Track and Field stick-waggler ever made. You see the trouble was, you didn't so much control your character, as offer suggestions as to which way he might want to go. More often than not, he'd completely ignore you, and nochalantly walk straight into a trap – time after time after time...and the asking price? A mere 45 nicker to you guv. Despite universal slagging in the computer press and a hefty price tag, *Dragon's Lair* is alleged to have sold by the skipload.

CHRISTMAS TURKEYS

It's traditional to have turkey at Christmas, but in the past the software houses have taken this a bit too far. This year's biggie, *Mortal Kombat*, is actually pretty good, which is spooky, as going by the rule book it should resemble a steaming heap of donkey manure. *Street Fighter II* just managed to squeeze through without completely embarrassing itself, but the role of dishonour stretches far into the history of the festive season: *WWF Wrestling* (challenge a mate as you take the roll of a nancy boy in lycra Y-fronts, and mince around the ring slapping your opponent), *Teenage Mutant Hero Turtles* (no relation to the coin-op, it set new lows in platform gaming), *Ghostbusters II* (the cause of much grief here at EMAP Towers after the one and only Brian Nesbit gave it a much deserved slating).

Navy Moves was a bit of a damp squib really.

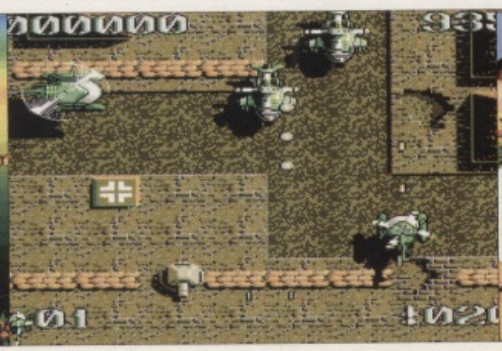
GOVERNMENT HEALTH WARNING

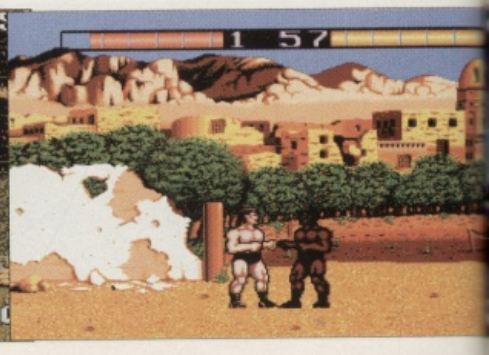
The following games are definitely bad for your health and injurious to your wallet. Award yourself five points for every one of the following you never bought: Back to the Future 2, Terminator 2 (which we embarrassingly gave a four-page review slot to when it was originally released - blush!), Paperboy 2, European Football Champ, Outrun Europa, LED Storm, Last Duel, Black Tiger, Judge Dredd, Espana Games '92, Popeye 2, Theme Park Mystery, STUN Runner; Darkman, Armalyte, Motorhead, Altered Beast, Frenetic,Dark Fusion, Techno Cop, Roy of the Rovers, Human Killing Machine, Street Fighter, Cool World, John Lowe Ultimate Darts, WWF 1 & 2, Final Fight, Predator II, Plan 9 From Outer Space, Indiana Jones and the Fate of Atlantis - The Arcade Game, Bonanza Brothers, Captain Planet, Venus, Final Blow, Robozone, Skull & Crossbones, Teenage Queen, ESWAT, FOFT, HATE, Willy Beamish, Hare Raisin' Havoc, Gemini Wing, The Godfather, Dick Tracy, Chubby Gristle, Vixen, Ninja Spirits, Superski, Crime Does Not Pay (well, it did for you, Titus!), Crazy Cars, Off-Shore Warrior, Galactic Conqueror, Tom and Jerry, The Pink Panther, Jaws, Galaxy Force, Grand National, Space Ace, Navy Moves, Army Moves, Pop Quiz/Question of Sport. Ivanhoe, Weird

G'DAY SPORT

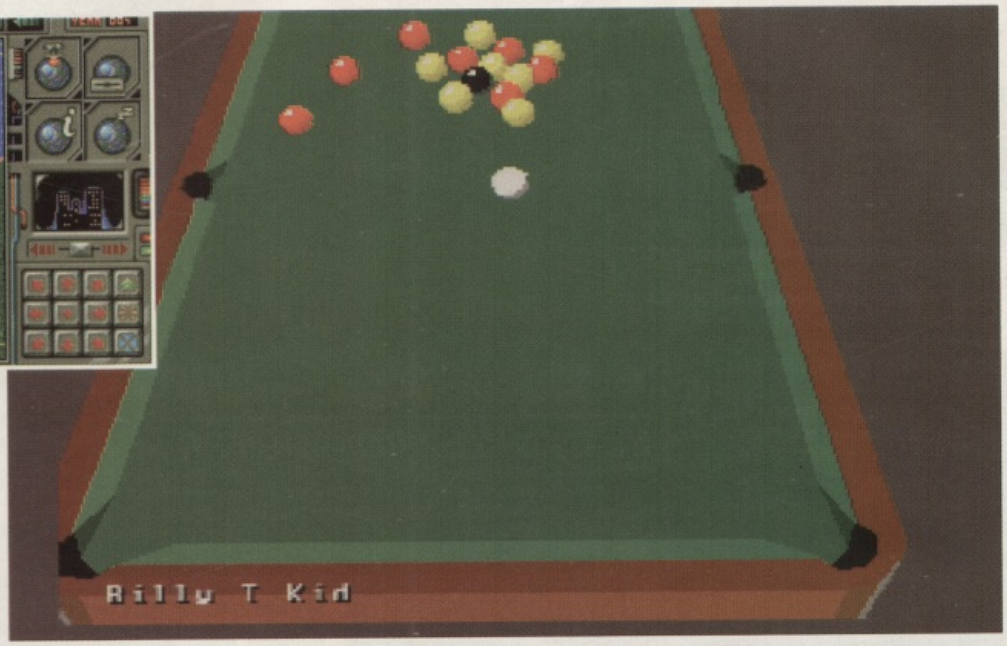
Sports games on the Amiga have fared considerably better than most other genres. It's difficult to say why this should be, but when you've got games like *Goal!, Sensible Soccer, Microprose Golf, John Madden, Speedball 2, Striker* and *Archer McLean's Snooker* amongst many others, we're not complaining too loudly! Even here, though, there are some absolute howlers. How about the Eddie the Eagle license from Loriciel? No, you didn't have to come last by spamming about on the piste,

It might be called *Streetfighter*, but that's about all.





Build your own sewage farm – hurrah!



3D Pool was strictly one-dimensional.

instead you had to take part in a ski jump event and compete for gold.

Maybe it's fitting that the computer with the best football games (*Kick Off, Sensi Soccer and Goal!*) should also play host to the world's worst. They don't come much worse than the Gazza games – yes, not one but two absolutely abysmal Gazza-endorsed footy games made it to the nation's shelves. *Gazza 1* was a revolution: the first flip-screen football game (the programmers could barely get the sprites to hobble around, let alone scroll the whole screen!). Like some kind of sick joke, they hit back some time later with the top-down viewed sequel. This time featuring a real scrolling pitch, it wasn't so much a game of football as a kick-about with a bunch of Chelsea pensioners playing with a water-filled balloon. Maybe this was to be expected, after all, fellow gurning geordie Peter Beardsley fronted an earlier attempt which saw a mass of 22 hunchbacked Beardsley cardboard-cutouts conducting early experiments into the aforementioned water balloon tactics.

Perhaps the worst 'sports' game of all time was Elite's *A Question of Sport*. Boasting digitised pics of Bill Beaumont and his mates (well, actually, they were egotistical pics of Elite's in-house staff), the player was presented with a series of rounds loosely based on the TV series. What happened next was conspicuous by its absence, and the game was basically a beat the clock affair with loads of tedious questions loosely slotted in to the televised rounds. No use of the Amiga's capabilities were made, but this didn't stop Elite copying the code again and relabelling it *Mike Read's Pop Quiz*. Actually whilst on the subject of Elite, let's not forget their Grand National game – although we'd love to! Control a horse as it runs upscreen, and press the fire button to make it jump over Beecher's Brook! Hardly the most varied of games, and about as much fun as watching National Velvet on a Sunday.

DEJA-VU?

Recreating certain game styles is nothing new as there are, after all, only supposed to be seven different genres. However, the following games are just a little too samey to warrant the extra cash:

Rotox/Operation Harrier - same system, both dull.
Shadowlands/Shadow Worlds - good one Krisalis, let's hope nobody notices.
Street Fighter/Human Killing Machine - different sprites, but that's about it.
Beast Busters/Space Gun - hey, let's replace the zombies with aliens!
Question of Sport/Mike Read's Pop Quiz - can anyone tell them apart?!
Batman/Terminator 2 - the first of many similar Ocean games.
Crazy Cars/Off-Shore Warrior/Galactic Conqueror - tedium on land, sea or in space.

»

ARMY MOVES & HUMAN KILLING MACHINE

What have these two games in common other than being completely awful? The answer is, ahem, that we gave them away as coverdisks in our dim and distant past. Even sadder, former deputy editor, Steve Merrett actually recommended them as giveaways - and this from a man with a supposedly encyclopedic knowledge of games...

» ORIGIN OF THE SPECIES

Of course, once you've squeezed every ounce out of the available licenses, the only other path to pursue is original products – and judging by some of the games we've seen over the years, this isn't a strong point with the majority of software houses. You begin to wonder if the only requirement to work in the software industry is a frontal lobotomy! Take *Magic Garden* from the now long-gone Electronic Zoo – go on, as no-one else will! This multi-stage runaround featured a collection of gnomes who were forced to explore a single screen environment in an attempt to cut the grass and stop the weeds growing. Whoever designed this certainly worked for their P45!

Beat 'em ups are a popular genre on the Amiga at the moment. What with *Street Fighter 2*, *Body Blows*, *Elfmania* and *Rise of the Robots* all vying for your shekels, the standard here is very high. But it wasn't always the case. The very first *Streetfighter* license was a dire affair, but the coders were so proud of their appalling conversion that they changed the graphics and re-hashed it as *Human Killing Machine* – complete with the abysmal "beat up the dog" section.

God sims are another area where fools rushed in after the spectacular success of Maxis' *Sim City* and Bullfrog's *Populous*. Anyone remember Millennium's *Global Effect*, steeped in eco-consciousness?! Yes, this was your chance to build solar-powered energy plants and complex sewage systems. How very interesting.

PLAN NINE FROM OUTER SPACE

On paper, this game must have looked like a good idea. The reality was one of the worst adventures ever. Explore building sites and graveyards in search of film reels – and if you do find one, you get to watch five digitised seconds of the shittiest film ever. What a reward. Gremlin bunged in a copy of the film with the game – and it comes to something when it proves more enjoyable than a supposedly spoof game...

WORST GAME EVER!

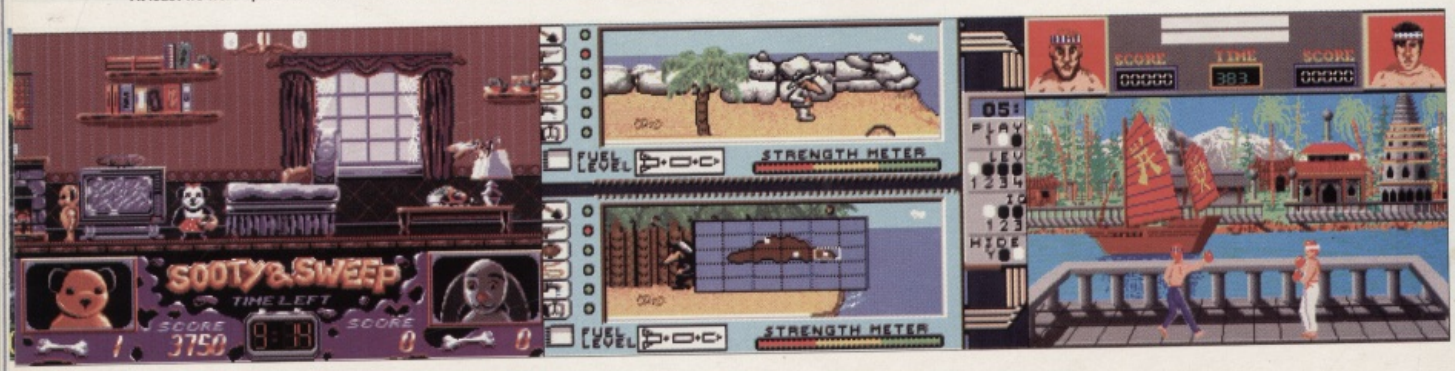
Yes, although it took days of soul-searching and heartbreak, we've finally managed to single out the most miserable piece of software ever to slide into an Amiga's disk drive. Laaaaaadies and Gen'lemen, the more than worthy winner of the Reg Holdsworth Award for Greatness is Gremlin's ROY OF THE ROVERS! You are Roy Race whose Melchester mates have been kidnapped by a property developer out to turn the Melchester ground into a car park. Exploring a flick-screen play area, you had to solve the mini adventure before going on to play in an even duller footy sim. Crap sprites, terrible music, and nothing to recommend. Boy, what a stinker...

THE LOSING FORMULA

There are many factors that can make a game cheesy or crap. It can be missed potential such as the aforementioned coin-op and film licenses, or it can just be a daft idea from the start – Manga-style porn in *Teenage Queen* anyone? Another problem can be the Amiga's disk-based loading system – waiting minutes for the next scene in *Willy Beamish* to load is probably the computer equivalent of watching endless repeats of Open University.

Perhaps the most heinous crime of all, though, is to let a game slip through the quality control net with more bugs in it than the whole of the South American Rainforest and, believe me, this is more frequent than you could possibly imagine! Even quality games such as *Kick Off 2* have suffered – kick the ball off a defender at the top of the screen for a corner and you'd end up taking it in your own half of the pitch! Crashes are another hindrance – nothing can be more annoying than racking up a top score only for the game to crash at an inopportune moment. Games testers are obviously not what they used to be. Because, of course, games never used to crash in the old days...

At least we were spared Matthew Corrbett!



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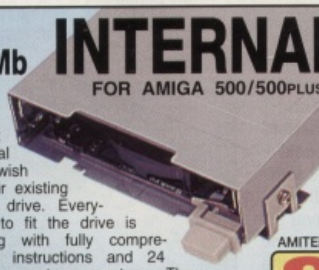
FOR AMIGA 500/500PLUS



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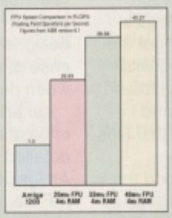

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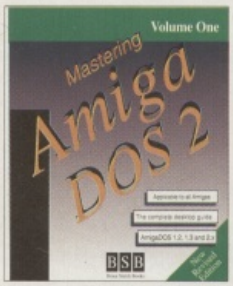
BOOKSHOP SPECIAL

If knowledge is power then books must surely be the Trident missiles of the intellect. Understanding how things work is the basis for getting the most out of them, and that's especially true of computers. Of course, on CU Amiga we delight in sharing our knowledge and experience with you, and hopefully that has helped you over the years, but there's only so far we can go. If you want to learn as much as possible about your computer, you're going to have to invest in some reading material; you never know, you might even enjoy the process!

No matter what your interests on the Amiga, there's bound to be a book that covers it. If you want to find out more about your favourite area of interest, then here's a selection of books that'll let you do just that.

MASTERING AMIGA DOS 2 VOLUME 1

£21.95 - BSB - 0923 894355



When Bruce Smith and Mark Smiddy began work on what was intended as the definitive guide to AmigaDOS, they imagined a single info packed volume. It wasn't long before they realised that they were going to over-run so they split the book into two halves: a reference volume and a tutorial.

This is the tutorial volume which has been designed to teach you how to use the Amiga's disk operating system (DOS) and how to get the best from it. It's been very much designed with programming beginners in mind and introduces the most basic DOS concepts gradually and in language that you can understand. For example, it describes the way that files are stored on a disk, and how directories and drawers work.

However, this is not some patronising guide which never gets beyond the end of its own nose. It also talks about a variety of advanced subjects such as creating your own compilation disks, recursive scripts, customising the startup-sequence and using Amiga text editors.

The book is aimed at Workbench 1.2, 1.3 and 2.x users; there's a separate volume for 3.0 (A1200/A4000) owners.

As with most BSB books, there's free disk available which contains many example scripts to demonstrate the stuff in the text.

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MASTERING AMIGADOS 2 VOLUME 2

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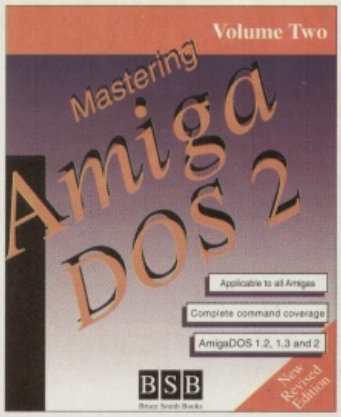
Whereas Volume 1 is targeted at those people who want to gain or expand upon their perhaps limited knowledge, this tome is for those who have a fair understanding of the workings of AmigaDOS but who simply require a reference source to clarify its parameters.

It provides a 307 page listing of every single AmigaDOS 1.2 – 2.04 command. Each command is shown with examples and templates as well as a description of when it should be used. The page layouts are well designed for maximum speed and ease of use – very important factors when designing a reference book.



In addition to the command reference, the book also includes five detailed appendices which cover AmigaDOS error codes, viruses, the IFF file format, the mountlist and the structure and capacity of floppy disks.

There can be no doubt that this book is a valuable companion if you intend to use your Amiga as anything more than a games machine.

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MASTERING AMIGA C

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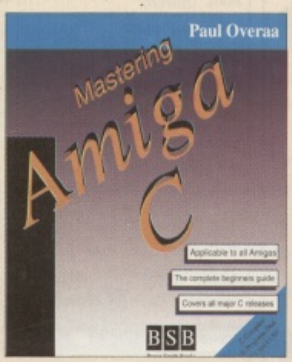
For many tasks, a language such as Basic or even ARexx is just not capable of providing the required speed or flexibility. In such cases you need to look at C or machine code. The Amiga's operating system was written in C, so that seems like a logical starting point.

Although programs written in C are not usually as elegant as those written in machine code, they run nearly as quickly and the language is not nearly as difficult to learn. Even so, you'll need good help to get you on your way.

Paul Overaa's book offers a reasonable starting place, and although absolute computer novices will find the going pretty tough, once you have a moderate understanding of AmigaDOS you should be able to cope.



The book deals with two C compiling systems in particular: the expensive SAS C development system, and the public domain North C package (which is included on the supplementary disk). It comes with specific worked examples which can be used with these compilers as well as talking in more general terms about the language.

There's no point suggesting that this book makes it easy to learn C; you'll still need patience and intelligence, but this simply offers you a good start.

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MASTERING AMIGA BEGINNERS

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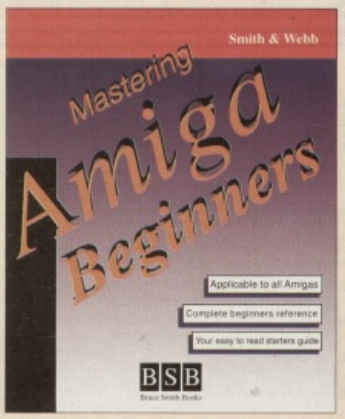
If you're new to computers, the Amiga must seem like a pretty scary beast, and the manual that comes with it doesn't do as much as it might to ease your trepidation.

This book is designed to introduce you gently to the plethora of subjects that you'll encounter as an Amiga owner, ranging from the Workbench to viruses, from setting up a printer to using software, it's all here.



The most important thing about the title is the language it uses, and in that regard it's generally very good. It's been written by Phil South who has a very good and non-jargonese way of writing. Rather than making his book a technical tutorial, he takes a much more conversational approach which helps to stop it from becoming boring.

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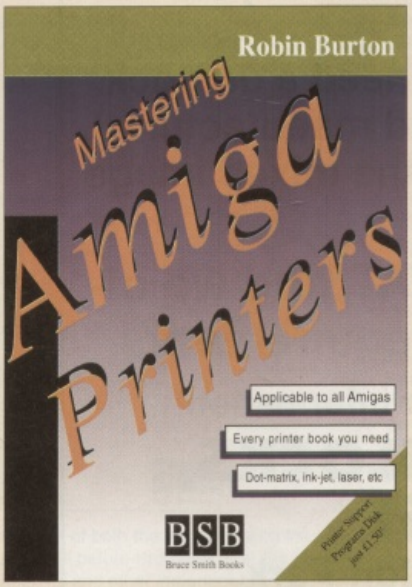

Few subjects cause Amiga users more consternation that getting their printer to work properly. Whilst many modern pieces of software take this into account, the majority of printers are still being used with older software, and consequently are still not being used to their best.

Mastering Amiga Printers covers every type of device from dot matrix to laser, and teaches you how to configure the printer to work with your Amiga. It covers subjects such as printer drivers, printing text and graphics and connecting the printer. It also goes on to more advanced subjects such controlling your printer in Basic, control and escape codes and even adjusting vertical and horizontal spacing.

To be honest if you only use your printer with a single word processor, this title is probably unnecessary, but if you use it with a lot of different packages then this book will enable you to finally get the sort of performance from your printer that you always hoped it was capable of.

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MASTERING AMIGA SYSTEM

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If you're learning to program, regardless of the language you're bound to have discovered that the Amiga is a complicated piece of machinery. Sure it's one of the most flexible and friendly home computers available, but harnessing this power in code is no easy task.

This book aims to help you to understand the big picture so that you can see the way that the different elements of the operating system (OS) work in relation to each other.

Definitely not a title for the beginner, Amiga System describes the ways that you can control and manage the Amiga's multiple elements, and describes techniques such as memory management, multi-tasking, libraries and devices. It also discusses at length the function and application of many of the custom chips including the blitter.

Demo writers will doubtless be pleased to see detailed analysis of the copper list, which is used so often to provide those rainbow colour bars that seem to be a feature of so many demos.

Most of the programming example are given in, and relate to C and this is obviously because the Amiga's OS is written in the same language.

Fortunately the information is provided within a practical framework so that you can easily appreciate the benefits of what is being discussed, so for example, in the section on the Serial port, the potential MIDI uses are introduced, and this adds relavence which keeps the text interesting.

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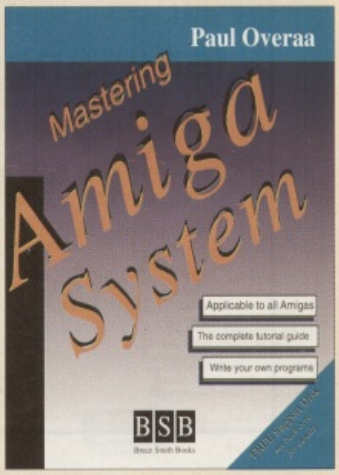

MASTERING AMIGA ASSEMBLER

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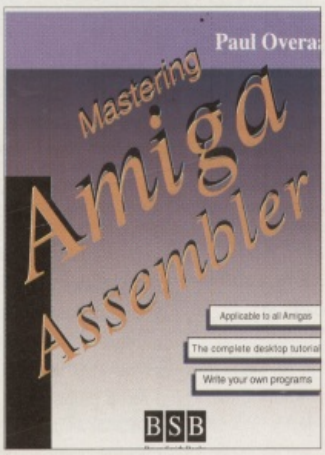
No Amiga language is as powerful or as difficult to learn as machine code. Programming this language is made a little easier by the use of an 'interpreter', a program known as an assembler, into which you can type mnemonics which are a tiny bit easier to understand and debug than raw numbers. However, the bottom line is that you're going to have to sit down at some stage and try to comprehend a language which is more hostile than any other.

Programming guru Paul Overaa attempts to ease your passage with his latest book, having already successfully written a C Manual.

Paul talks about the basic concepts that you'll need to grasp in order to understand what assembly language is all about. He also describes the architecture of the 68000 chip in some detail before going on to describe simple programs designed to solve specific easy problems. This practical approach is useful because it helps you to see the language in the context that it's most likely to be used.



The book progresses to explore ever more complex programming concepts such as using library routines and how to access the custom chips directly.

Even if you successfully read this from cover to cover and understand everything, it won't make you a commercial programmer – only practice will do that – but you will understand enough to write your own assembly language programs to perform moderately complex operations.

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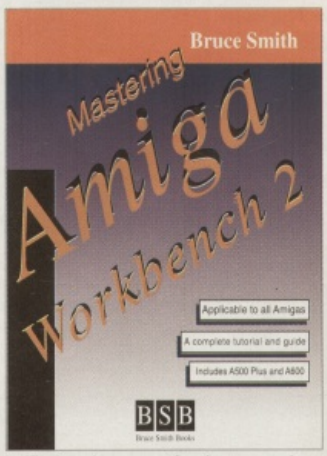
MASTERING AMIGA WORKBENCH 2

£19.95 - BSB - 0923 894355

Even if you only play games, you're likely to encounter the Amiga Workbench sooner or later. For many people it is little more than a portal, an environment that they pass through on the way to something else. However, Workbench is much more than that, and in release 2 Commodore made it even more powerful. This book aims to show you how to get the most out of the most frequently accessed Amiga environment.



Not only does it go into detail about how the Workbench can be configured for your exact requirements, it also describes how this configuration affects the other programs you use.

With a detailed step by step description of the contents of each drawer, and the purpose of the files found there, to a certain extent this is a glorified replacement for the manual you received with your computer. However the book does go into more detail, and makes diversions not found in Commodore's offering.

For example, the virus threat is examined and explained and you're given unequivocal guidance about how to avoid infection. The book also looks at hard drives and tells you how and why to perform regular backups.

Useful as a tutorial for the beginner and a reference source for the more experienced user. A1200 and A4000 owners would be advised to watch out for Mastering Amiga Workbench 3.

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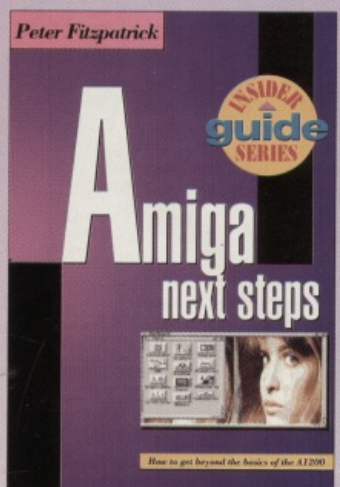

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Amiga A1200 Next Steps by Peter Fitzpatrick, £14.95, ISBN: 1-873308-24-8
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Amiga Assembler Insider Guide by Paul Overaa, £14.95, ISBN: 1-873308-27-2
Do you want to learn Assembly language but don't know your *IntuiMessage* from your *Null terminated string*? Then the *Amiga Assembler Insider Guide* is the book for you. It explains the concepts behind the processes and demystifies the jargon with easy-to-follow worked examples and step-by-step instructions. Applicable to all Amigas including A600, A1200, A3000 and A4000, it provides a perfect flying start in Assembler programming. Comes with a *free* disk which includes the A68k assembler and all the programs from the book.

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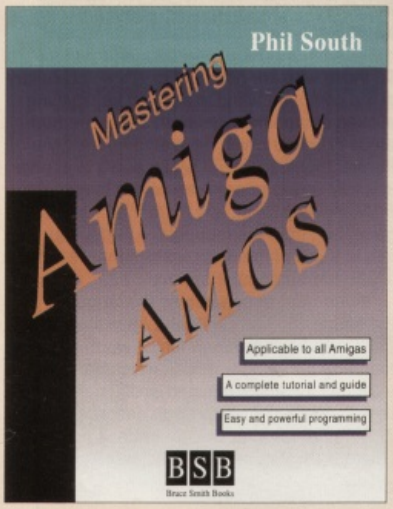

No language has inspired the public's imagination in quite the way that AMOS has. It combines the relative simplicity of Basic with the raw power of C and some cases even assembly language. Even so, the instruction manuals provided with it are quite badly written and many would-be programmers have fallen at the first hurdle.

Phil South offers a hand to get you on your feet. Not only does his book cover all versions of the program including Easy AMOS, AMOS 3D and AMOS Pro, it even covers some of the PD and supplementary programs that are available.

As with all programming books, it starts with an overview of both the language and the tools used to program it, but it's not long at all before Phil dives in at the deep end describing Procedures, loops, variables and other important building blocks of the language. This approach works quite well because it means that you can start seeing results quite quickly, and thus gain encouragement.

Although the book is about the size of all other BSB titles, it's subdivided into zillions of chapters and sub-sections. This is quite handy because it means that you can break your lessons down into nice small bite-sized pieces – essential when dealing with such a potentially heavy subject.

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MASTERING AMIGA AREXX

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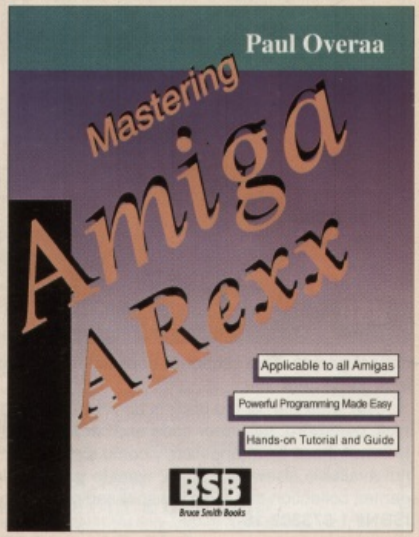
Arexx is like the superglue of serious Amiga programs. It binds them all together using a uniform language that lets them exchange data and share resources. It also lets you automate single programs so that multiple complex operations can be performed with minimal user-input.

Once again Mr Overaa rears his head, and this time he guides you through the wonderful world of Arexx, starting with a look at the strengths of the language and ending with a summary of the public domain versions that are available.

On the journey we look at the basic components of the language and the way that they can be combined to create powerful batch processing scripts. Hints on program design and documentation conventions are given so that you don't fall into bad habits.



The subject of debugging is also examined, with tips to ensure that you can find and solve even the trickiest errors.

Paul also talks extensively about inter-program communications, with a number of example programs included to clarify the tutorials.

This is ideal for anyone who keeps buying programs which claim Arexx compatibility without realising why this is so special.

89%

ISBN# 1-873308-13-2

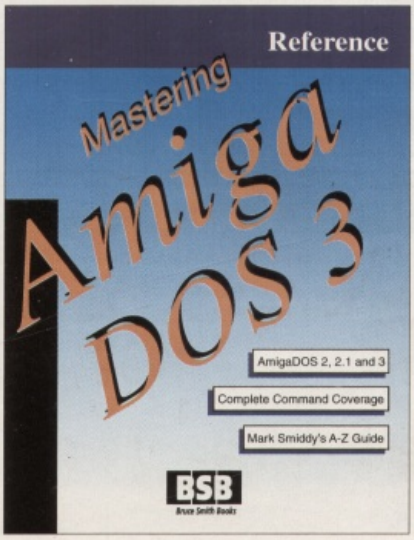
MASTERING AMIGADOS 3

£21.95 - BSB - 0923 894355

Before you can program, or play games or use any software at all, the disk operating system has to come into play. This under-rated part of the computer is crucial to many parts of its operation and understanding the way it works will help you to take better control of your Amiga.

Despite its title, this book is aimed at all AmigaDOS users, not just those who own 3.0 machines. However, this is the only title which includes specific information about the newest version of Commodore's operating system.

As with Mastering AmigaDOS 2 Volume 2, this book is primarily a reference source, and although you could perhaps use it for learning about AmigaDOS commands, it's not really suited for those who have no knowledge of AmigaDOS.



The command summary has been expanded from 307 to 345 pages to encompass the extra features of Kickstart 3.0. There are also two additional appendices, one of which deals with public screens, whilst the other lists commodities qualifiers.

This title is even more comprehensive than its predecessor, and should take pride of place in any Amiga enthusiast's library.

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AMIGA INTERN

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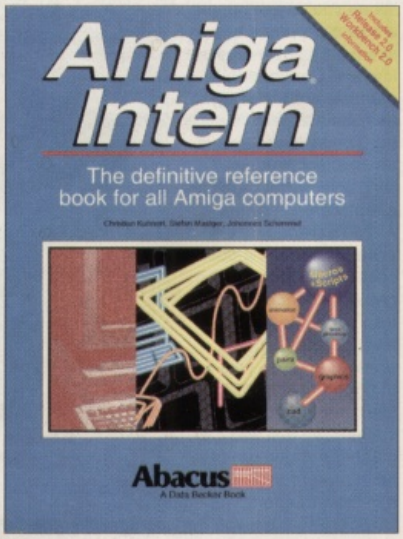
A basic knowledge of the Amiga's internal architecture is useful to all but the most superficial of users, and to programmers it's essential.



Amiga Intern is one of the last Amiga titles released by Abacus, a publisher once renowned for its catalogue of Amiga books, but more recently moved on to other computers for its revenue. This is a shame considering the comprensive nature of this title, but at least they left with a bang, not a whimper.

The book attempts to act as the definiitive reference work for all Amiga computers (up to the 3000). It describes the inner workings and function of not only the computer but a range of the most popular peripherals such as the flicker fixer and 68030 accelerators.

It describes in extensive detail Kickstart 2, OS 2.0 and Arexx. At all stages particular attention is paid to the A3000, and vast sections of the book are devoted to its physical and software architecture.

Unfortunately the book was almost immediately made redundant when Commodore released their AGA range, but as many users still prefer the A3000, this is worth considering.

ISBN# 1-55755-148-0

81%

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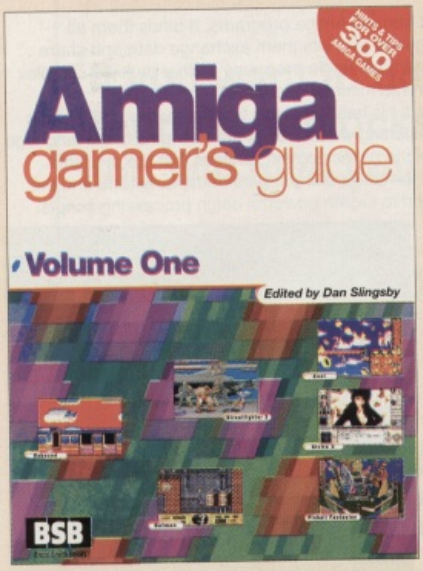
AMIGA GAMER'S GUIDE

£14.95 - BSB - 0923 894355



Okay, so it's all very well expanding your knowledge and becoming an Amiga egghead, but you know what they say 'All work and no play...'. If you're as serious about your games as you are about your utilities, then this is one title you should be considering.

Edited by CU's own editor Dan Slingsby, the guide offers advice and tips on the 'classic' games of all time, ranging from Monkey Island to Dungeon Master, from Speedball to Populous.

It's split into two sections, the first of which occupies the vast majority of the book. In the first section detailed solutions and playing tips are offered for 26 of the Amiga's all-time hottest games. This section is copiously illustrated with screenshots of the various game sections.

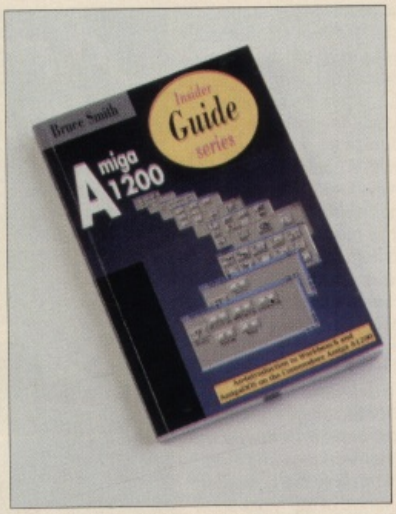
The latter part of the book is an A to Z of Amiga cheats and lists every dirty trick, password, backdoor code and cack-handed playing tip known to man. Many of these have apparently come directly from the programmers and are not available elsewhere. If you want to get full value from your games collection this is an indispensable guide to doing so.

92%

ISBN# 1-873308-16-7

A1200 INSIDER GUIDE

£14.95 - BSB - 0923 894355



When you've just bought a new computer it can seem pretty over-whelming, and Commodore's manuals are not always as helpful as they might be. The Insider Guide is an ideal solution.

It acts not so much as a replacement for the A1200's manuals as an accompaniment. It does cover much of the same ground, but doesn't profess to go into the same level of detail. What it does do is guide you through the essential basics of the machine in such a way that you can glean the maximum useful information with the minimum of effort.

Every so often you'll encounter little boxed off areas containing special tips to help you get the most from the subject at hand.

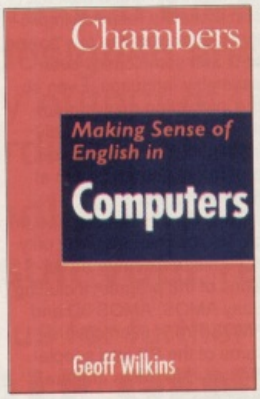
It covers all aspects of the machine, dwelling mainly upon the Workbench and AmigaDOS. It's a relatively inexpensive way of going on a computer beginner's crash course. Concise, yet entertaining.

86%

ISBN# 1873308159

MAKING SENSE OF ENGLISH IN COMPUTERS

£5.99 - WHSMITHS



To those who are not used to it, the vocabulary of the computer world is as alien as anything spoken on another continent. There are hundreds of words which have an infuriatingly familiar feel to them yet which seem to appear in totally unexpected contexts. No longer is a RAM a male sheep, any more than Kermit is a green frog from the muppets. A RAM, it turns out, is a unit of memory, whilst kermit is actually a modem transfer protocol.

If you want to understand the language of the future, you can't just read on in the hope that it'll all become clear. Isn't it worth investing a measly six quid for a book which not only explodes the acronyms and endless abbreviations, but gives down to earth descriptions of their meanings in language which, if not quite Queen's English, is certainly closer than that spoken by computer addicts?!

90%

ISBN#0-550-18050-8

JARGON EXPLAINED!

AmigaDOS - Amiga Disk Operating System - The language that is used to control all operations involving disks, be they hard disks, floppy disks or RAM disks. All reading and writing is done using AmigaDOS.

Assembler - A program for the creation of machine code programs. An assembler lets you enter programs as a series of letter codes representing certain actions. These codes are then compiled into pure numeric machine code.

Basic - A relatively simple programming language originally created as an aid to teach students about the inner workings of computers. Basic programs tend to be slow and unsophisticated compared to other languages.

C - The language in which the Amiga's operating system is written. Less complex than machine code or assembly language but harder than Basic and more powerful.

Compilation Disk - A disk that contains more than one program on it.

Compiler - Software for converting source code into machine (or object) code.

Jargonese - An imaginary language made up of all the (often unintelligible) technical words in a computer user's vocabulary.

Source Code - A program written in a specific language. Source code needs to be converted into object or machine code before it can be run by the computer.

Workbench - The Amiga's software interface to other programs. Think of it like a tool rack that holds the other tools.

Virus - A program that has been created by a malicious person and which is designed to move from the computer's memory to any unprotected disks, usually damaging or destroying data on each disk it 'infects'.

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PC MAGAZINE UK EDITOR'S CHOICE OCTOBER '92

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PCL 5 Printer Command Language	-	YES	-	YES	YES
HP-GL/2 Vector Graphics included	YES	YES	-	YES	YES
Resolution Improvement/Enhancement	YES	YES	YES	YES	YES
Standard RAM	1Mb	1Mb	512K	1Mb	2Mb
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Warm Up Time	33 secs	25 secs	<60 secs	60 secs	45 secs
First Page of Text Output	-	15 secs	31 secs	18 secs	<15 secs
Document Description Language included	-	-	-	-	YES
Flash ROM	-	-	-	-	YES
Flash ROM Upgradeable Firmware	-	-	-	-	YES
PCMCIA Card Slot	-	-	-	-	YES
Scaleable Resident Fonts - in HP LJ III Emulation	0	8	0	8	8
Resident Bit-Mapped Fonts	10	14	2	14	14
AGFA Intellifont Scaleable Font Technology	-	YES	-	YES	YES
HP LaserJet III Emulation Included	-	YES	-	YES	YES
EPSON FX Emulation Included	-	YES	YES	YES	YES
IBM ProPrinter Emulation Included	-	YES	YES	YES	YES
Standard Tray Capacity	200	150	70	200	100
Protective cover on standard tray	YES	-	YES	YES	YES
Cost per copy**	1.9p	2.0p	2.1p	2.2p	1.65p
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Able to print on OHP Film	YES	YES	YES	YES	YES
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**As quoted by manufacturers - July '92

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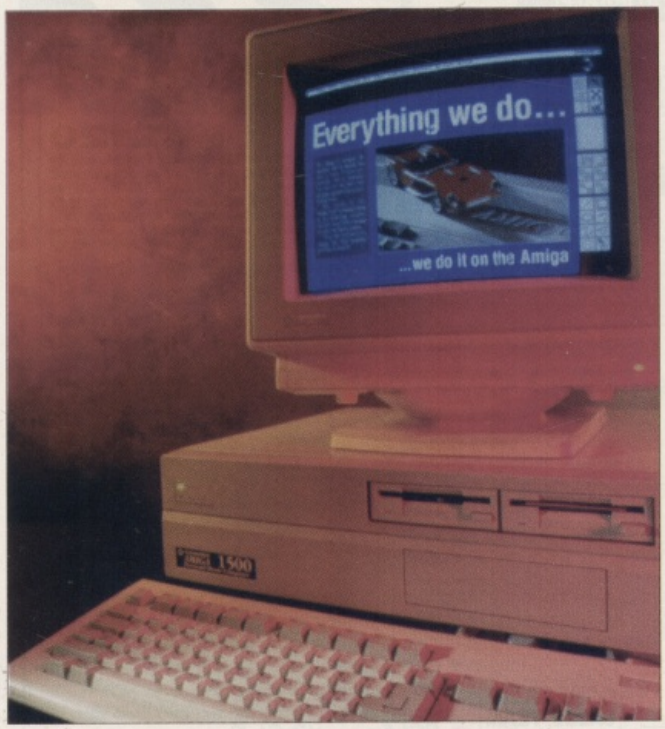


No longer do you have to pay commercial printers great wads of your hard earned cash to produce and print your documents. The Amiga is more than capable of professional results.

Although the Apple Macintosh still reigns supreme as THE desk top publishing (DTP) computer, there is absolutely nothing that can compete with the Amiga in terms of value for money, and the PCs and STs just fall on their backs kicking their little legs in the air when it comes to software.

The Amiga has a long history in the DTP market, but nowadays the battle is being slugged out between two main companies: Softlogik and Gold Disk, both of whom regularly update their software.

With packages from either company you could easily create an entire magazine, or a single page flyer, and these could include 24-bit graphics, structured drawings, bit-mapped clip art and a variety of fonts. You can output to the humblest home printer, or if you have the money you can take your work to an output bureau and have it commercially printed. So let's take a look at the choices...

PROFESSIONAL PAGE 4.0

£199 - MERIDIAN DISTRIBUTION - 081 543 3500

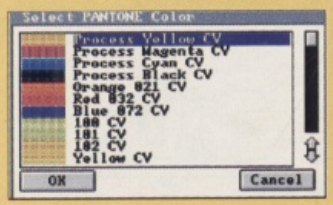
In the constant war for supremacy in the Amiga DTP scene, *Pro Page* has always managed to keep ahead of its rivals. Time to see if that's still true.

Professional Page comes from Gold Disk, a company who have been producing Amiga DTP packages for almost as long as there have been Amigas. The program has been constantly upgraded, and tends to appeal very much to DTP purists who like everything to be very precise.

It has a very elegant user-interface, and on ARexx machines it also offers additional tools known as Genies, which are basically short mouse selectable programs which perform specific operations on your document, or part of it.

COLOURS OF THE RAINBOW

On AGA machines you can view documents in up to 256 colours, although additional colours tend to delay the screen updates exponentially. Most likely, you're going to continue to work in wireframe monochrome mode for maximum speed. One big advantage on AGA machines is the fact that when choosing colours for text and lines, etc, the pantone palette is now much more accurately represented without relying so heavily upon shading. This is useful because these are the colours used in the commercial printing industry.



You can view up to 256 colours on-screen which means the Pantone palette can be represented more accurately.

***Professional Page* has long enjoyed a reputation as the best Amiga DTP package, but version 4 is somewhat unstable and *Pagestream* really gives it a run for its money.**

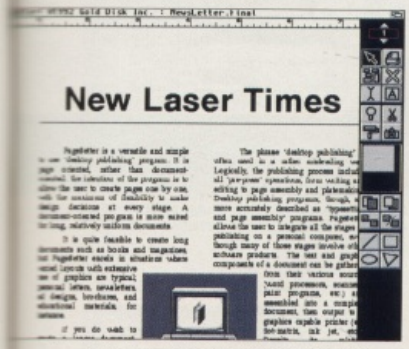
Pro Page supports facing pages, and unlike its rival either page can be edited. You can also place graphics across pages to create double page spreads; essential if you want to create commercial magazines.

FARTY FONTS

Although the program supports both Compugraphic and Adobe typefaces, the latter can only be used after conversion with the Font Manager program provided. However, this causes problems because the Font Manager often fails to fully convert

PAGESETTER 3

£49.99 - MERIDIAN DISTRIBUTION
081 543 3500



For most people, *Pagesetter 3* is all they'll ever need in terms of desk top publishing software. As you can see, it can produce perfectly acceptable pages.

If you want to get into DTP but you don't have much money to get started, *Pagesetter 3* offers superb value, and will probably satisfy the needs of most home users.

As the specifications for Amiga DTP packages increase, so does the minimum machine on which you can run them. *Pro Page* needs a couple of megs of RAM and a hard drive, and although *Pagestream* will run in one meg with only an extra floppy, you're not really going to get much use out of it in such a configuration. *Pagesetter 3* has been specifically designed for the smaller user, and runs perfectly well in a one meg, two drive machine. Of course, it will happily work with a more powerful machine, and you're still going to run out of memory if you start to design large documents, or those containing lots of fonts and graphics.

Pagesetter is not aimed at professional or semi-professional users, but for the enthusiastic home user it's exceptionally good, offering features not found in DTP packages costing ten times as much on the PC. It's basically a slightly cut-down version of *Professional Page 2.0*, a product which was still receiving very favourable reviews a year and a half ago.

The program consists of three elements: *Article Editor* (AXE) for editing text, *Graphics Editor* (GrE) for editing graphics, *Pagesetter* for designing page layouts. *Pagesetter* is the main program, and it allows you to access the other two elements which are hotlinked to it. Each of these elements is actually a separate program, but by making them accessible from *Pagesetter* means that you can immediately edit bit-mapped graphics in a pseudo art package, or alter and spell check large amounts of text in the cut-down word processor. The changes you make will then be instantly made to your DTP document without needing to reload the various sections.

Unlike previous version of the program, *Pagesetter 3* supports colour printing. On the A1200 and A4000 you can view your work in up to 256 colours, although owners of other machines will have to make do with 2-4 colour previews instead. Regardless of the machine being used, *Pagesetter* will import any IFF bit-map, including those created on AGA machines, and even HAM and 24-bit images. This is useful because if you have a decent colour printer you can output images that you can't even view!

The program also lets you import structured clip art such as that created by *Professional Draw*. Better yet, 120 pieces of scalable clip art are included, and these would previously have cost more on their own than this complete package.

It supports scalable compugraphic typefaces, and there's even a utility provided to convert Adobe Type 1 typefaces into the required format.

It comes with the same user-friendly interface that has made Pro Page so popular, and the manual, as you might expect, is excellent.

The program comes with Graphics Editor, a cut-down art package for retouching bit-mapped clip art, etc.

CONCLUSION

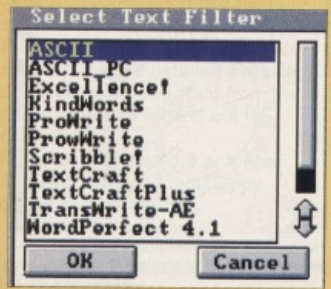
It's very hard tto fault *Pagesetter 3* given its extraordinarily low price. Sure it could have more features, but with word processors costing as much as £129 nowadays, this program looks simply incredible. Whether you're putting together club newsletters, doing your homework, producing adverts or any of a thousand DTP jobs, *Pagesetter 3* is a great starting place, and one from which you're unlikely to have to upgrade unless you are a professional.

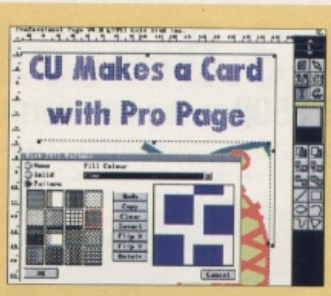
complicated fonts that *Pagestream* can handle in their native format. Furthermore, because the program only uses fonts stored in the assigned CG fonts drawer, the number of fonts you have available (without lots of messing about) is limited to the size of your disk or hard drive.

Furthermore, the range of styles that can be applied to a font is really very unimaginative, with shadow and outline being the most exciting options.

Fortunately, despite these limitations (which only tend to effect headlines anyway), the program has wonderful text handling, and offers automatic import of text from every major word processor on the Amiga including *Scribble!*, *Word Perfect* and even a few PC programs.

If you don't own a word processor, not to worry, the program is supplied with the same *Article Editor*





Alhough you can't apply many interesting styles to your fonts, you can fill them in the pattern and colour of your choice.

included with *Pagesetter 3*, so not only do you have a very capable word processor, but you also have a comprehensive spelling checker too. In fact, Article Editor is a cut-down version of TransWrite, and can be used as a stand alone program when you simply need to bang out a few words quickly.

GRAPHIC GENIUS

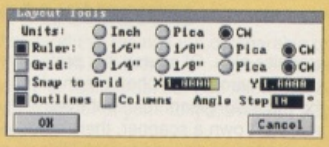
When it comes to graphics, *Pro Page* is even more versatile. Of course, it imports every IFF format under the sun, from mono-chrome bitmaps up to 24-bit pictures and it also supports all the major formats on other computers too, so you can just as easily import a GIF picture from a Mac, a PCX, BMP or TIFF file from a PC or even Encapsulated Postscript files. But it doesn't stop there; the program handles mono and colour structured drawings created on all known Amiga packages, it also handles Adobe Illustrator and Freehand files, so you can exchange graphics with the most popular DTP software in the world.

The range of page layout tools is also very impressive, ensuring that even the most demanding of jobs can be performed quickly and with micron precision, literally!

CONCLUSION

Professional Page is a superb desk top publishing package beyond any doubt. However, in their rush to beat Softlogik to an AGA release, it seems that Gold Disk were less thorough than usual in debugging their software, and this has resulted in a couple of minor but persistent and irritating faults. If the font handling were better, this would still be the pinnacle of Amiga DTP software, but it isn't, and it's not.

I've been a very loyal *Pro Page* user for over five years, but even I'm beginning to wonder if I can make



The accuracy with with which you can design layouts is one *Pro Page*'s advantages.

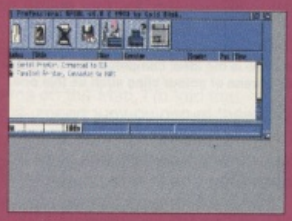
Spool's no Fool!

When it comes to printing, DTP programs can be real dogs. The trouble is, they use scalable fonts for maximum quality, and each page can contain masses of pictures too. The programs always print at the best possible quality which means that even dot matrix owners can get great looking pages. Unfortunately the cost for such slick results is time, with pages taking as long as fifteen minutes and even more to print.

Now in itself this is bad enough, but the real problem is the fact that you can't actually do any more work while the program is printing. Or at least not unless you own *Pro Page 4*, which is supplied with a nifty print spool program which you can use to print a document while you carry on with your work.

Better yet, you can also use the program to handle printing for any other Amiga application that lets you specify a printer device.

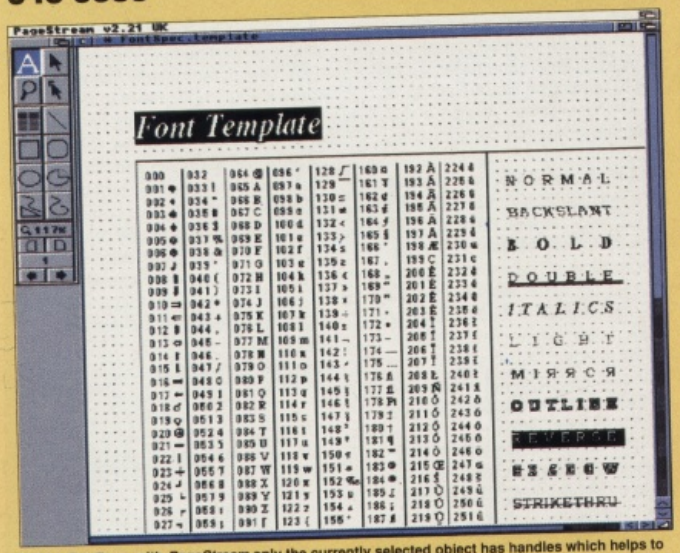
If you have multiple print jobs, it will also deal with those, queing them up and printing when it gets time.



Thanks to *Pro Spool*, you don't have to stop work just because your printer's working.

PAGESTREAM 2.2

£99.95 - MERIDIAN DISTRIBUTION - 081 543 3500



Unlike *Pro Page*, with *PageStream* only the currently selected object has handles which helps to keep the screen less cluttered.

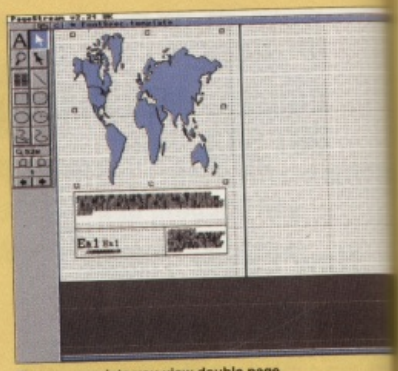
If you prefer a less formal approach to Desk Top Publishing, perhaps *PageStream 2.2* is the one for you.

The interface is clear and pleasant to use; the latest release now conforms more closely to Workbench 2 styling. You can run *PageStream* in interlace or non-interlace, on a custom or Workbench screen, with the tool palette on the left or right of the screen, and in two, four, eight or sixteen colours; though on an unaccelerated machine the use of more than four colours makes screen refresh rate rather sluggish. The four colour option is perfectly acceptable for normal use and causes no real refresh problems.

FRIENDLY TEXT

The program opens with a completely blank page onto which you can import graphics, create a column or columns to receive text previously prepared on a wordprocessor, or, unlike *Pro Page*, you can type straight onto the screen. This produces a "text object" (perhaps a title or headline), which can then be manipulated just like a graphic, including the ability to drag, rotate, slant, twist and manually resize it. This can result in so-called "bastard" point sizes, where the height and width of the typeface are different. Traditional typographers would probably dislike this feature, claiming that a font is designed to be seen only in its original proportions, but sometimes it might be just what you need to fit a headline precisely into the area you want it to fill.

Only the currently selected elements are provided with sizing handles, leading to an uncluttered screen and showing you instantly which objects are active. To enable you to line up objects more precisely than is possible by eye, Snap to Grid and Snap to Guide options are available, with the option of measuring the grid in inches, centimetres or points; the grid spacing can be selected from one of the twelve supplied, or can be user-defined. The optional rulers have been improved both in accuracy and readability.



The program lets you view double page spreads, but the pages still have to be edited individually.

STUPID DPS

Double page spreads can be viewed, but editing can only be performed on the left-hand page. To swap elements between pages you have to cut and paste, as it isn't possible to just drag an element from one page to another. Text flow around graphics is well supported, allowing words to

PROFESSIONAL DRAW 3.0

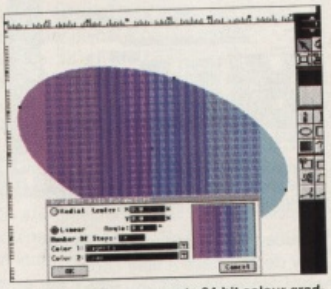
£129.95 - MERIDIAN DISTRIBUTION - 081 543 3500

Pro Draw is the ideal companion for *Pro Page* unless you have a 3.0 Amiga. It comes supplied with dozens of colour clips such as this one.

If you want to pep up your pages, a structured drawing package offers graphics which always look good no matter what size they're printed at.

If you've ever paid attention to magazine layout, you can't have failed to notice what a crucial role graphics play. Of course in a professional environment, photograph play the most significant role, but even if you don't own a scanner, there's no reason for your pages to look lifeless.

Professional Draw helps you create structured drawings, in other words filled line drawings which can be enlarged or reduced with no loss of quality.



Professional Draw supports 24-bit colour graduation, although obviously the results can only be viewed in all their glory with a decent colour printer.]

You can either draw these from scratch or use a program called *Trace* to convert ordinary bit-maps into structured drawings. Once you've created a drawing it can be printed directly from within the program, or saved as a clip for importing into your favourite DTP package.

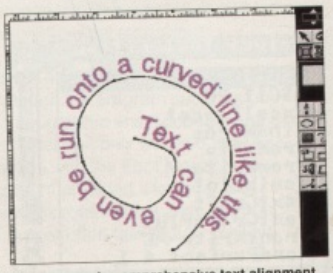
Because *Pro Draw* has been created by Gold Disk, the program can be hot linked to *Pro Page*, so that clips can be exported directly to a document.

The program is supplied with a variety of drawing tools to make your life easier including line, rectangle and circle tools. However, the program's strength lies in the special effects it can perform. Things like aligning text with complex curves so that it follows them exactly. It also offers a selection of graduated fill patterns, which are printed in 24-bit colour to give the smooth gradients possible in your documents.

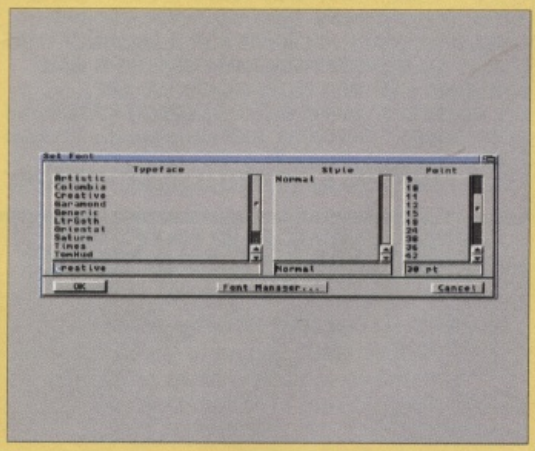
If you prefer to use somebody else's work, there's a whole disk full of full colour structured clips included.

CONCLUSION

Pro Draw is a very nice piece of software, and although it looks a tad plain compared to newer rivals, it more than serves my requirements, and unless you are very demanding, it'll serve yours too. Not exactly a



The program's comprehensive text alignment options are one of its greatest strengths.



Not only does *Pagstream* have the most flexible font handling out of the packages reviewed here, but it also lets you apply more styles to text once it's on the screen.

DTP Wars

ProPage and *PageStream* have constantly vied for the title of Best Amiga DTP Program. It's very much down to the way you like to work as to which you'll prefer. Of course if you don't have a hard drive, the choice is already made for you, as current versions of *Pro Page* cannot be used without one; *PageStream 2.2* will run from floppy disk, though naturally this will prove a little cumbersome. The minimum memory requirement is 1Mb, though this is frankly inadequate for all but the simplest documents. Serious DTP workers will find they need more like four or five megabytes to avoid problems.

appear underneath, all round or to either side of a picture; it can also follow the edges of an irregularly shaped object. Columns of text are easily linked, allowing your text to flow from one column to another, at any point in your document.

PageStream can apply many styles to your text, not only the usual italics, underline and bold, but also shadow, backslant, light, reverse (i.e. white on black), outline, double underline, and the rather less useful strikethru, upside down and mirror. *Pro Page* users can only look on in envy at many of these styles as they're not supported in their package.

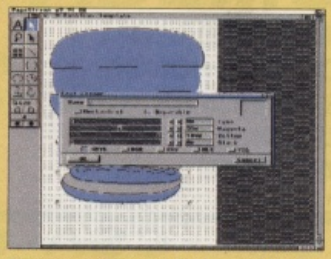
Text can be in any colour, on any colour background, and (if you're using a bold enough typeface for it to show) one of many fill patterns, including a user-definable pattern, can be added. Compugraphic fonts can be sized from 0.01 to approx. 600 points, and Soft-Logik and PostScript fonts from 0.01 to 183,000 points; so next time you need to knock out a newsletter the size of Europe you'll have no problems!

DRAWING TOOLS

Structured drawing tools are provided, so adding neat boxes or frames is extremely simple. Line styles can be applied to all structured shapes, with a choice of eight line widths, seven styles (various combinations of dots and dashes) and one user-definable style. Ends of lines can be square, bracket-shaped or arrowheads, and line widths from 0.01 to 655 points can be produced.

Printer support is excellent, with drivers for dozens of printers provided, including the popular Canon bubblejet and H.P. Deskjet ranges. *PageStream* overrides your Workbench Preferences and printer DIP switch settings to produce the best print resolution possible. Crop marks are available for use on any printer. PostScript users are well catered for with the new improved PostScript driver, with the ability to include slur gauges, colour strips, registration marks, and frequency and screen angle for colour separations. An interesting new driver has been provided – you can now output to a plotter or sign cutter should you have access to one.

HotLinks support is provided, enabling easy transfer of information to other HotLinks compatible programs, such as SoftLogik's Art *Expressions* structured drawing package, BME bitmap editor, and *PageLiner* word processor.



The program offers very good support for all graphics formats, but this is rather let down by its restricted screen palette.

CONCLUSION

PageStream 2.2 is an admirable program, perhaps better suited to the more experimental and "creative" attitude to page design than the slightly more traditional *Professional Page*.

Any Amiga with 1 meg RAM and 2 floppy drives.

89%

ART EXPRESSION

£199.95 - MERIDIAN DISTRIBUTION - 081 543 3500

Brand loyalty is a natural enough feeling, and if you own *PageSetter*, you may well prefer to use *Art Expression* for creating structured drawings rather than *Pro Draw*.

The two programs are very similar, and if price were no object, it would be tough to choose between them. Like its rival, *Expression* provides a full selection of drawing tools to help you create structured drawings that will print at the maximum resolution your printer is capable of.

By default the program saves images in Encapsulated Postscript Format (EPSF), which makes them far more portable than *Pro Draw* clips, which are only used on the Amiga. Strangely enough, *Expression* can't load EPSF files, but plans are afoot to change that in future versions.

It doesn't offer the easy-to-use gradient fills of it rival, but using the blend feature you can create the same effect, as well as many that *Pro Draw* isn't capable of. The only trouble is, this feature is trickier to use and takes a while to get used to.

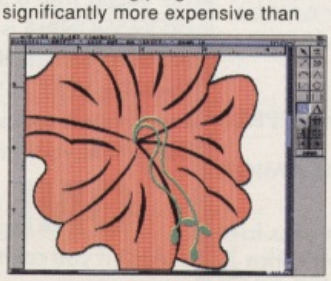
One unique option that *Art Expression* does have is the ability to conform any object to a predefined shape. Superficially this is useful for simple perspective effects, but with imagination you can turn it to far more sophisticated uses such as simulating reflections on spheres and so on.

CONCLUSION

Art Expression is a very powerful structured drawing program and ideal as a companion for *Pagestream*. It's significantly more expensive than *Pro Draw*, and for this reason you ought to make a detailed evaluation of exactly what you want from the package before forking out the extra £70.

Requires Kickstart 1.3 or higher and 2mb RAM and two floppy drives or a hard drive.

86%



***Art Expression* also provides the option to align text with a freehand line.**

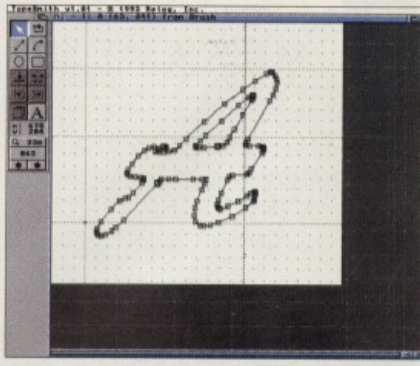
TYPESMITH

£169.95 - MERIDIAN DISTRIBUTION - 081 543 3500

Since the release of the 2.0 Amigas, scalable fonts have increased in popularity dramatically. Used in an art or DTP package, they offer flexibility and high quality. *Typesmith* is still the only worthwhile program for creating your own typefaces.

The program works almost exactly like a structured drawing package, using mathematical definitions of shapes rather than bit-mapped objects. However, it also comes with comprehensive facilities geared towards the very demanding requirements of designing structured fonts. Despite the complexity of the subject, *Typesmith* comes with what is probably the best manual I've ever seen, and this makes learning to use it quite easy.

The program is capable of importing and exporting fonts in all major formats, so you can not only use it to convert between Amiga formats, but you can even use PC and Mac fonts as well.



***Typesmith* is the only structured font designer and converter available to English speaking Amiga owners. Just as well it's so damned good then!**

CONCLUSION

Although I've never seen comparable programs on the Mac, I'm told that *Typesmith* is superior to programs costing many times as much. I don't know whether that's true, but I do know that Soft Logik have set an extremely high standard for anyone to match if they hope to compete in the same market.

Requires Kickstart 3, 2mb of RAM and 2 floppy drives or a hard drive.

96%

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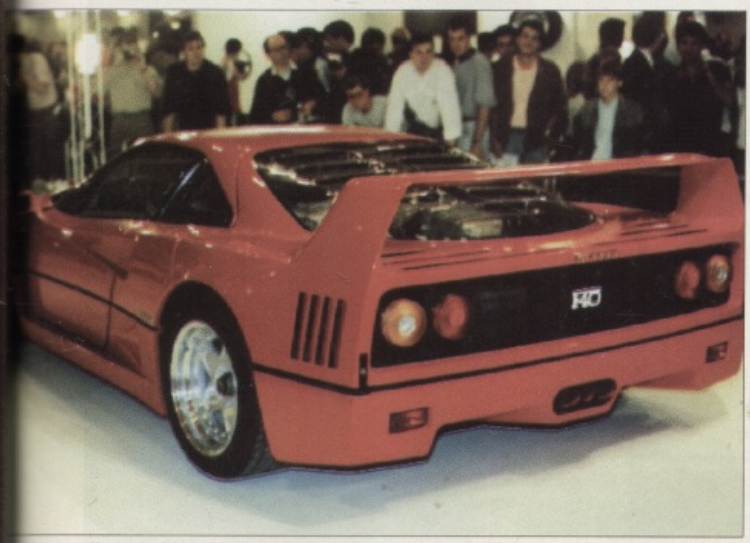

If you need A4 24-bit scans, the Epson GT6500 is as good as you'll ever need as you can see by this image. Current competition means that the price is falling all the time.

Although there are loads of scanners available nowadays, for true 24-bit quality Epson still hold all the cards.

Although the popularity of desk top publishing has meant that there are numerous reasonably priced hand scanners available, if you want to scan up to A4 size in a full 16.6 million colours, you're going to have to look at a flatbed scanner. The Epson range have long been the darlings of the Amiga world and the GT 6500 shows why.

With a maximum resolution of up to 600 dots per inch (DPI) it scans at three times the resolution of the best colour hand scanner, but to put that in context, you're very unlikely to need more than 400 DPI in any case. What you are going to appreciate however, is the scanner's full 24-bit colour resolution, which means that you can use its scanned images in a professional printing environment - in fact CU Amiga uses this scanner to digitise the photos used in the magazine.

It comes with good software, but is even better if controlled via the dedicated *Art Department Professional* driver. *Image FX* also directly supports this scanner.

CONCLUSION

The Epson GT 6500 has a serious price tag which reflects the serious use to which you can put it. Not only is it faster than the previous version, but it's about six times as fast as the redundant £150,000 scanner we have in the offices. A transparency attachment is also available, and if you have that, then there really isn't anything more that you'll ever need, no matter how upmarket your requirements are.

Compatible: Any Amiga capable of running *Art Department*, although 4-8 Mbs of RAM are the practical minimum requirement.

95%

ADDRESSES

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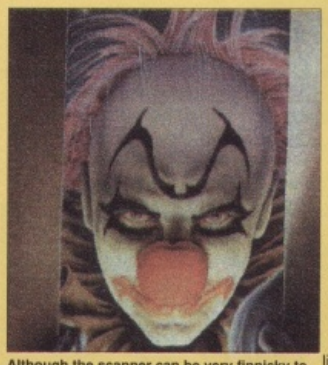


Although the scanner can be very finnicky to set up, once you've got it working it produces some damned fine results.

Even if you can't justify the price of an Epson 24-bit scanner, you can still enjoy high quality colour scanning for a fraction of the price.

The Alfa Data is a hand scanner almost identical in size to the monochrome scanners that have been around for years. It's capable of colour scans at a resolution of up to 200 DPI in 18-bit colour. If you're scanning images for a DTP package this is likely to meet all home needs, and you're only going to start running into problems if you start increasing the size of a scanned image, in which case the limitations of its resolution start to become apparent.

When used in conjunction with an AGA Amiga, the scanner produces quite impressive results, although it can take a little messing around to get the best from it.

The device also offers grey scale scanning in up to 256 shades, and at a resolution of 400 DPI. The results in monochrome really are excellent, and even newspapers don't always scan at such a high resolution.

CONCLUSION

The Alfa Data colour scanner provides an excellent budget priced entry to the world of colour scanning. I personally was surprised at the quality of the results which were far higher than I'd anticipated. Well worth a look.

ALFASCAN PLUS

£129 - GOLDEN IMAGE - 081 365 1102

Whether you're designing a club newsletter or an advert to go in your local shop window, adding graphics will certainly perk up your presentation and make what you've got to say considerably more interesting.

The Alfascan Plus provides an inexpensive way of digitising photographs and pictures so that they can be included directly into your DTP documents.

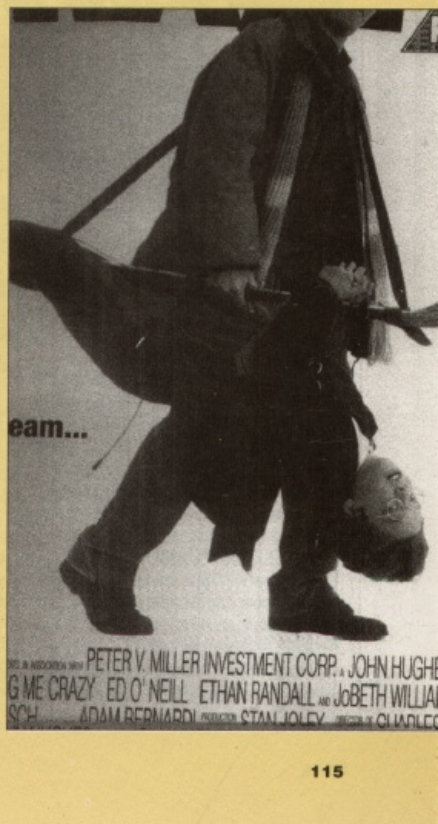
It offers up to 256 shades of grey at a resolution of up to 400DPI. Once scanned, images can be saved as IFF files or TIFF images. If you opt for IFF, you can choose monochrome (two colour) images which retain the original scan's resolution, or you can save grey screens £256 colour on the A1200 and 4000 or 16 colour on pre-AGA Amigas.

CONCLUSION

The Alfascan is a very nice scanner which produces impressive results. I've owned one for over a year any I simply wouldn't be without it.

Requires 1Mb RAM.

87%



Offering scans in up to 256 shades of grey, the Alfascan Plus gives very good value for money, and the results are good enough for newspaper work.

DPaint can be used to produce some pretty stunning titles when used in conjunctio with a genlock.

Desktop Video

Desktop Video isn't just restricted to video professionals. With nothing more than a genlock and some software, you can create your own videos that would turn the BBC green with envy. To find out more, read on...

Most types of computer have their own 'niche', an area of computing where they particularly excell – Apple's Macintosh has made it big in desktop publishing, the Atari ST still reigns supreme in the music industry and the Amiga too has its own niche in the video market. Like the Mac and (to a lesser extent at least) the ST, the Amiga dominates its niche market with very little serious competition to trouble it. All around the world you'll find Amigas in television studios and movie post-production units happily rubbing shoulders with equipment costing tens of thousands of pounds.

If you switch on your television tonight, chances are you'll watch a program that has felt the influence of the Amiga – programs like the 'Chart Show', BSkyB's 'GamesWorld' and 'GamesMaster' feature video graphics produced entirely on the Amiga. Even top television shows like 'Babylon 5' and Spielberg's latest epic 'SeaQuest' have an Amiga working behind the scenes somewhere! The Amiga has made it big in the movie industry too – in the smash hit movie 'Jurassic Park', an Amiga and VideoToaster combination was used to produce storyboards of the animated dinosaurs by ILM designer Stephan Dechant.

That's not to say that desktop video is restricted to wealthy television studios only. Far from it. Armed with nothing more than your Amiga, a couple of video decks and a genlock, you can spruce up your home videos of your Auntie Gertie getting drunk and embarrassing the family with ease. For those of you that aren't 'in

If you own a camcorder and an Amiga, then you too will be able to make some fairly stunning videos which will certainly make your drab neighbours' juttery holiday movies look especially sad.

Before teaching him all we know about the Amiga, CU Amiga's ex-technical editor, Nick Veitch, used to present the weather on Breakfast TV. Allegedly.

the know', a genlock is simply a clever little device that combines the graphics you create on your Amiga's screen with a video signal produced by anything from a camcorder to a standard domestic video recorder. The genlock works by removing the background colour from the Amiga's video signal which allows the live video to show through the gaps that will inevitably appear. How much will it cost to get started? Well, providing you already have two video decks and an Amiga, it's perfectly possible to buy a half-decent genlock for the price of two games. And whoever said desktop video was expensive!

AAANNDDDD.... CUT!

To be perfectly honest, I very much doubt that any Amiga user worth their salt needs reminding just how well prepared the Amiga is for desktop video work, but what exactly is desktop video? Well, ask anyone this question and you'll probably get pretty much the same answer time and time again – video titling. Fact is, most Amiga users still consider video titling to be the 'be all and end all' of desktop video. Believe it or not, however, video titling is actually a fairly minor aspect of this all-important application. Sure, it's the one area of desktop video that most people use, but that's not to say that desktop video just entails adding a couple of flashy titles.

Desktop video systems are capable of so much more, however. Not only can you overlay titles on top of your holiday videos, but you can also use your Amiga to control a video editor, a piece of hardware that connects to the Amiga that is capable of pin-pointing sections (or, as the video professionals call them, 'Clips') of video footage from several source tapes, arranging them to suit your needs and then 'assembling' them onto your final mastertape. The resulting footage will appear to cleanly cut between 'scenes' without your audience having to endure those embarrassing or boring hours of footage that you left on the cutting room floor (in a manner of speaking, at least!). Combine this with the ability to generate video titles and you've already got a system that can do pretty much the same job as the sort of expensive hardware the BBC use. What's more, an Amiga editing/titling system will cost you a fraction of the price of these so-called 'professional' systems.

With tumbling prices and the January sales just around the corner, it's possible to pick up a decent camcorder for less than £500. All you need then is a genlock, an Amiga, your home VCR and you'll be in the video production business, churning out an endless stream of family weddings, birthdays, christenings, funerals and, for the more enlightened, births.

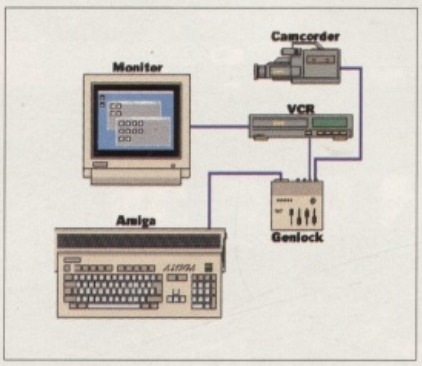
CHROMAMAGIC

There's very little video gadgetry that the professionals use that hasn't been released for the Amiga in one form or another. One of the most exciting new developments in Amiga desktop video is the 'ChromaKey' system, a device that works in conjunction with a genlock that allows you to create the fantastic 'blue screen' effects that made Superman fly and Wayne and Garth from the cult movie 'Wayne's World' appear to travel to exotic locations without leaving the television studio. Possibly the best (and most cliched!) example of this technique has to be the TV weatherman who appears to stand in front of a map of the British Isles. If you were to view him 'live' within the television studio, poor old Michael Fish would be pointing at nothing more than a blank blue screen!

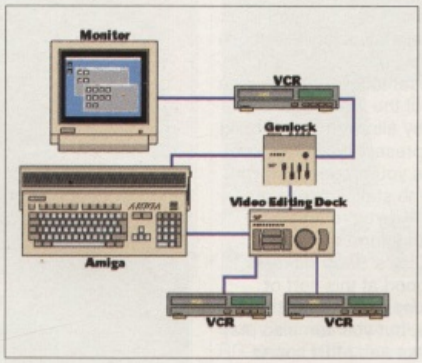
All these effects (and more!) were created using a ChromaKey system. Put simply, a ChromaKey simply works in the opposite direction of a genlock. Whereas a genlock 'keys' »

Video Setups

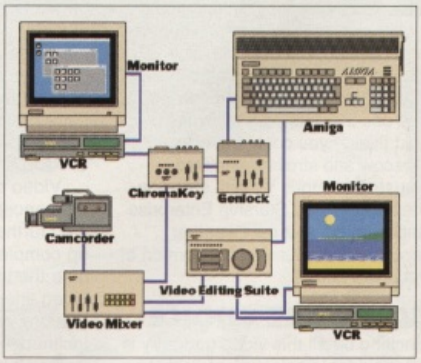
You don't have to spend thousands of pounds to get started in desktop video. With little more than a couple of VCRs and a genlock you can easily start working on video productions that would have turned BBC television engineers green with envy little more than a few years back. Let's take a look at three setups, starting from a very basic one to the sort of video setup that video users dream of.



Here's possibly the most basic desktop video setup you could start with. Although we substituted the second video recorder for a camcorder, the theory is pretty much the same. The output from the camcorder (either live video or prerecorded footage) is fed into the genlock which combines the graphics produced on your Amiga into a genlocked signal which is then recorded onto tape via the VCR connected to the genlock's 'Video Out' socket. In order to view the genlocked image, the video out signal from the VCR is connected directly to your monitor via its 'CVBS' connector.



Slightly more complex this one. With the addition of a video editing system, we're given direct control over source video material from a variety of different video decks. Video 'clips' can be taken from any point on any one of the source videos and synchronised automatically with graphics generated by the Amiga. More expensive video editing systems like the 'VideoPilot' will automatically handle the task of 'tape assembly' and will even cue the Amiga when graphics are required, so the whole process is carried out with minimal user interaction once the 'flow' of video production has been setup.



If you want the ultimate in desktop video setups (and can afford the asking price!), then this is the sort of thing you should be looking at. With the addition of a ChromaKey system and a Video Mixing deck (the most expensive bit!), this system can do everything that the previous setups could do plus we now have the option of putting live video actually on top of the Amiga's graphics to create the sort of 'TV Weatherman' effects that have become so cliched these days. An extra monitor has also been added too, so that we can preview the output from the video mixing desk. Expect to pay a packet for this sort of setup!

Genlocking is a process whereby the graphics from your Amiga are overlayed on top of a live video signal. In order for the video signal to be seen, the background colour from your graphics is removed.

(overlays) your Amiga's graphics on top of a live video signal, a ChromaKey removes a certain colour from a live video signal (usually blue – hence the blue screen that Michael Fish points at!) and replaces it with your computer graphics giving the effect of the live video being placed on top of the output from your Amiga.

If you're lucky enough to own a camcorder, then a ChromaKey system really comes into its own. By simply placing yourself in front of a highly contrasting coloured backdrop and then adjusting the ChromaKey so that it uses the colour of your backdrop as the 'key' colour, you can place yourself in front of any computer-generated backdrop. Buy yourself a digitiser and you can even digitise images of exotic locations and use them as your backdrops. Just think – you could travel to Moscow and stroll around Red Square with Boris Yeltsin, stand on the bridge of the Starship Enterprise and even do your own weather reports without leaving the comfort of your own home!

SOFTWARE CHOICE

Backing up all this video gadgetry is a formiddable selection of desktop video software that will help you to create exciting video productions that run perfectly on cue. These generally come in two flavours – video titlers and video presentation systems. Video titlers are pretty obvious – using the Amiga's own powerful font handling capabilities, they allow you to create titles complete with special effects such as shadows, outlines etc. Some of the more powerful packages give you the chance to actually 'scroll' your titles in true television style both horizontally and vertically which is ideal for producing the sort of 'rolling credits' you see at the end of all television programs. If you're particularly proud of your holiday video, why not use a titling program to let your audience know who the stars were, who the director was, who made the coffee and – most important of all – who was responsible for the fabulous titles that are assaulting their eyes!

You don't have to buy a dedicated video titler for this sort of thing, however. Any conventional paint program can be used to draw up some very flashy titles. *DPaint* is particularly well suited to this sort of thing thanks to its powerful animation facilities. *DPaint*'s ability to automatically generate animations of the transformation of a brush in three dimensions can be used to create spinning logos just like those on 'Top of the Pops'.

Video presentation systems take the concept of the video titler one step further by allowing you to build up complex presentations that combine the titles you produced in your video titler with static images, animations and – if you're musically inclined – some form of backing track. Gold Disk's *ShowMaker* is particularly good at this sort of thing – not only can it do all the above things, but you can also play sound samples and MIDI sound tracks, apply Amiga-generated video 'wipes' (transistions between one image and another) and you can even call upon the talents of other programs using its powerful ARexx facility.

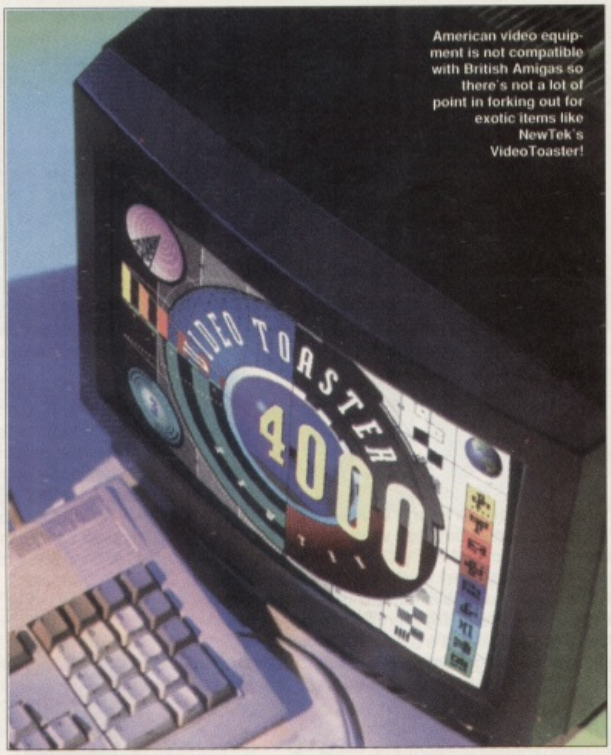
The Burgess Video Group are one of the biggest video production houses in the UK and they use Amigas to do it!

Video signals layed bare

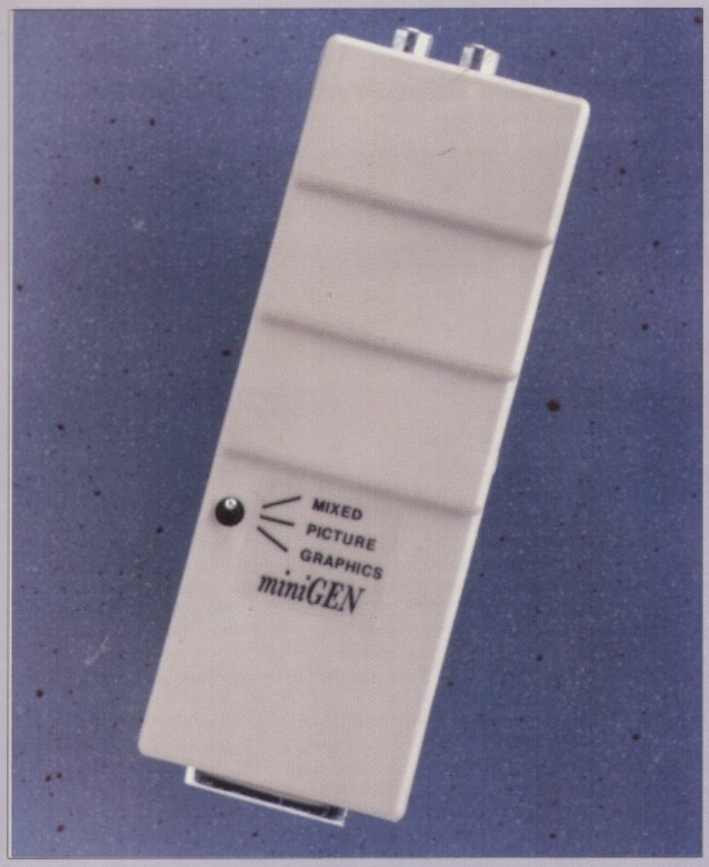
You may well think that all video signals are pretty much the same, but don't you believe it. Not only are there different formats over here in the UK, but the same formats (in name at least) vary considerably depending upon which country you live in. There are primarily three different video 'systems' that are used around the world: PAL (which is the standard we use in Britain), Secam (the French system) and NTSC (the US system). The differences between these three different systems must be understood if you intend to buy a lot of expensive video hardware. Take NewTek's wonderful Video Toaster board, for example. You may have seen previews (and even reviews) of it in other magazines, but the simple fact of the matter is that the Video Toaster is an NTSC only device – try to connect a PAL signal to it and it won't be able to make head nor tail of it.

The answer lies in what the techies call a 'video standards converter', a very expensive device that takes a video signal in one format (PAL, for example) and converts it to another format (NTSC, for example). Problem is, these video converters can only handle a single video signal at once, so you'd need more than one if you wanted to use a device like the Video Toaster. Even then, a device like the Video Toaster needs what is known as a 'Time Base Corrector' if you want to feed it more than one video signal.

For us British videophiles that want to do nothing more than overlay titles from our PAL Amigas on top of a PAL video signal, there are very few problems to be encountered. It's important, however, to make sure that the genlock or ChromaKey system that you buy matches the video output from your video decks. If you intend to work with higher resolution SuperVHS signals, for example, then make sure you buy a genlock that can handle SuperVHS.



American video equipment is not compatible with British Amigas so there's not a lot of point in forking out for exotic items like NewTek's VideoToaster!



MINIGEN

£49.95 Lola Marketing 0858 880182

Undoubtedly the cheapest genlock available on the market has to be Lola Marketing's new MiniGen. MiniGen isn't really that new, however – more seasoned Amiga users may remember that a company called Applied Systems and Peripherals (ASAP to its friends) launched MiniGen over six years ago. Back then MiniGen retailed for over £100 but Lola has resurrected MiniGen after a couple of years absence from the market at this new low price.

Specification wise, MiniGen is nothing special. Unlike units such as Roctec's RocGen Plus and even Lola's own MiniGen Plus, MiniGen does not offer any form of fade or dissolve controls. What's more, it only handles composite video signals and even then the image quality leaves a lot to be desired. As a very cheap introduction to desktop video, however, MiniGen is worth investigating.

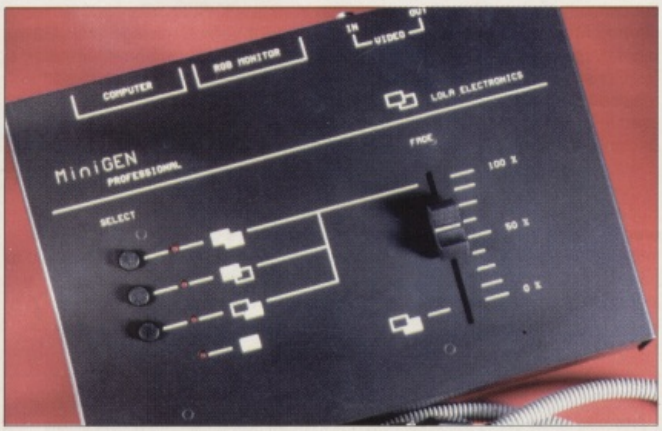
63%

How Genlocks work

We've all seen what a genlock is capable of, but how do they actually work? Well, believe it or not, but the process of overlaying graphics on to a 'live' video signal is a fairly minor function of a genlock. All genlocks perform three functions: encoding, genlocking and keying. When the genlock 'encodes' a video signal, it takes the RGB signal fed to it from the Amiga and converts it into the video signal format required by the genlock (either composite or SuperVHS depending upon the type of genlock you own). Once encoded, it is then synchronised (genlocked) at sync pulse level with the 'live' video signal fed to the genlock from your source video player. Finally, in order to superimpose the encoded Amiga graphics, the genlock removes all occurrences of a given 'key' colour from the Amiga image which then allows the live video signal to show through the gaps that remain. Most genlocks restrict the 'key colour' (the colour that is removed) to the Amiga's colour register 0, but more expensive units allow you to specify the key colour yourself.

MINIGEN PLUS

£149.95 Lola Marketing 0858 880182



Even Lola would admit that MiniGen isn't quite good enough to compete against modern genlocks such as the RocGen Plus and so they've launched the MiniGen Plus, an enhanced version of MiniGen that adds a few extra features to MiniGen's existing circuitry. To make room for those extra features, MiniGen Plus comes in a much larger solid steel casing that can certainly take a few knocks. Unlike MiniGen, the MiniGen Plus offers an all-important RGB pass-thru connector and full fade and dissolve controls.

The image quality of MiniGen Plus still leaves a lot to be desired even when compared to its nearest rivals. If you're in the market for a genlock with these sort of features at this sort of price, then you're probably better off going for the RocGen Plus – not only does it offer superior image quality but it can also offer full compatibility with Roctec's excellent ChromaKey system.

60%

ROCGEN PLUS

£149.95 Silica Systems 081 309 1111

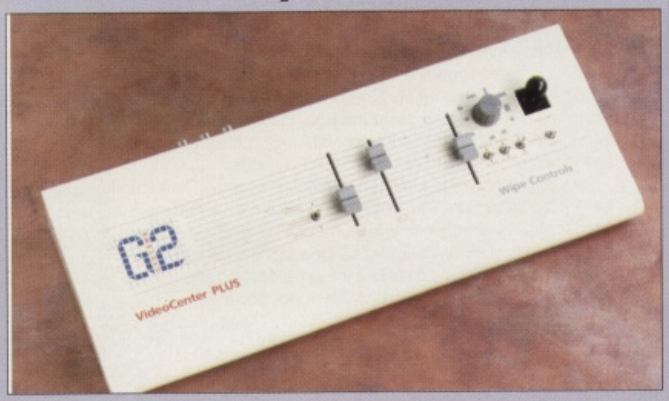
If there was one genlock that was solely responsible for bringing about the timely demise of the original MiniGen, it had to be Roctec's original RocGen RG300C. Roctec have since improved the RocGen immeasurably and the result is the RocGen Plus. Although it's limited to composite video signals only, it handles these very well indeed. One feature unique to a genlock at this price is the RocGen Plus' ability to alter the 'key' colour, a feature that is used to great effect with Roctec's own RocKey ChromaKey system.

Like its rivals, the RocGen Plus offers full fade and dissolve controls which allow you to fade between video sources. In all, the RocGen Plus is an excellent first time genlock for those users that need the sophistication of a much more expensive genlock without the high asking price. Highly recommended.

84%

VIDEOCENTRE

£495 G2 Video Systems 0252 737151



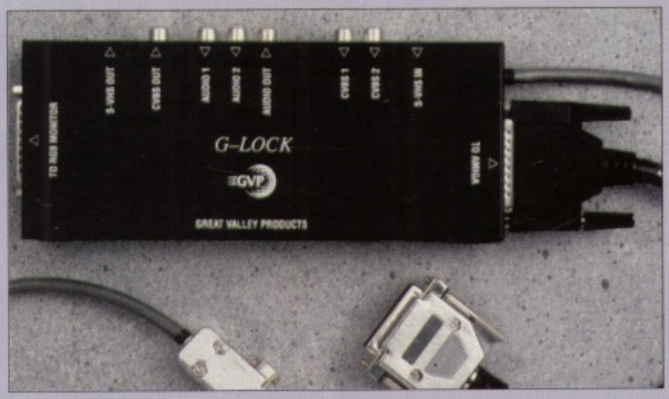
Thanks to a recent drop in price across their entire range, G2's excellent range of professional quality genlocks are now a serious option to both the amateur and professional videophile. Their entry level genlock is the VideoCentre, a well designed and well built genlock that is pitched squarely at the Rendale Super 8802 and GVP's G-Lock.

The VideoCentre consists of a large cream-coloured unit that, via the long lead supplied with the unit, is designed to be placed next to the Amiga's keyboard, giving direct control over the genlock's many functions. Like the Super 8802 and G-Lock, the VideoCentre offers full SuperVHS and composite video signal compatibility and comes as standard with both fade and dissolve controls. Although still rather pricey when compared to the GVP G-Lock, the VideoCentre is still an excellent genlock. If you're prepared to pay almost £200 more than the price of G-Lock, you'll find the VideoCentre to be a very capable performer.

72%

G-LOCK

£299 GVP/Silica Systems 081 309 1111



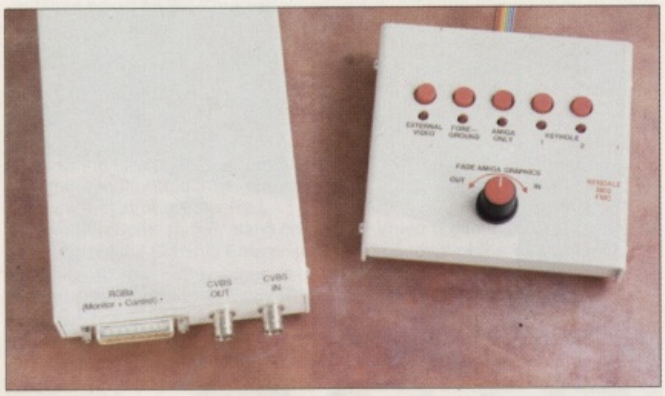
GVP have an unrivalled reputation for producing state of the art Amiga products that leave the competition for dead and their G-Lock genlock certainly doesn't disappoint. Although it boasts a rather strange design that doesn't immediately seem that practical, the G-Lock is one of the first Amiga genlocks that can be completely controlled through software. GVP themselves include a control panel utility but – thanks to G-Lock's excellent ARexx implementation – there's no reason whatsoever why you couldn't control G-Lock from any video presentation system capable of sending ARexx commands!

Like its competitors, the Rendale Super 8802 and VideoCentre Plus, the G-Lock handles both SuperVHS and composite video signals and the image quality is very high indeed. If you need SuperVHS compatibility, then this is the genlock to buy – especially when you consider that it's hundreds of pounds cheaper than its competition!

91%

RENDALE A8802 FMC

£178 Marcam Ltd 0602 790466



Marcam may not be a household name to most Amiga users, but their range of Rendale genlocks are some of the most popular and well equipped on the market. The latest addition to Marcam's range is the A8802 FMC, an enhanced version of the original A8802 genlock. The device consists of a rather plain looking metal box that connects to the Amiga's video port and a separate effects box that can be brought around to sit next to your Amiga's keyboard. This effects box gives the A8802 FMC the ability to fade between signals and a special 'keyhole' feature that lets you change the key colour used by the genlock hardware.

The A8802 FMC can take input from just about any composite video device and, although the A8802 is not broadcast quality, the quality of the keyed signal is virtually second to none amongst genlocks in this price range. The A8802 FMC may not be as powerful as SuperVHS equipped genlocks like GVP's offering, but it more than matches the likes of the RocGen Plus, etc. Highly recommended.

76%

GENESYS

£799 G2 Video Systems 0252 737151

G2 certainly isn't the sort of company that stands still. Not content with already offering Amiga videophiles three different types of VideoCentre genlock, G2 recently released the GeneSys genlock. Its price tag may seem rather steep, but GeneSys is the first truly affordable professional quality genlock to be released for the Amiga. GeneSys is based around the same keying technology used in its broadcast quality VC3 genlock, an expensive rackmounted genlock designed for use within the professional video industry. As a result, the image quality is totally top-notch.

Like its little brother, the VideoCentre Plus, GeneSys can handle both SuperVHS and composite video signals although the extra bandwidth delivered by those VC3 circuits gives much better picture quality. Although not included as standard, G2 also supply an optional remote unit that allows you to perform all sorts of fade and dissolve operations without having to reach across to access the genlock's own controls. An excellent genlock at a reasonable price.

73%

GENLOCKING TOP TIPS

Producing decent quality genlocked images is a fine art in itself, but follow these simple guidelines and your genlocked video signals will be crystal clear.

1. Always use first generation video material.
Everytime you make a copy of a videotape, the copy quality will degrade which can make the genlock lose sync when you attempt to overlay graphics on top of the live video signals. If at all possible, always use the original mastertape.

2. Use good quality video leads.
All leads introduce a certain amount of 'noise' into a video signal and so it's very important that you go for the best quality leads that you can afford. Try to avoid using leads that aren't designed to carry video signals (audio leads, for example). If in doubt, have a chat with your friendly local camcorder supplier.

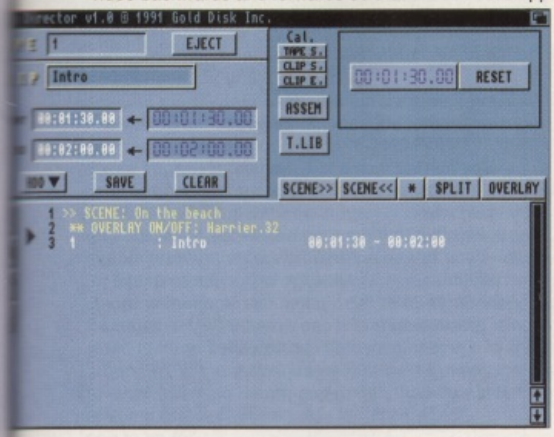
3. Use a PAL Encoder.
If the quality of your final results is still a bit below par, then you may want to invest in what is known as a 'PAL Encoder'. These devices take a video signal, strip out its sync signals and then add new (stronger) sync signals. This will give you a much more stable picture. PAL Encoders are available from most camcorder stockists for around £100. Also available are what is known as 'Video Enhancers' that do pretty much the same job for less money.

VIDEO DIRECTOR

£149.95 Gold Disk (UK) Ltd 071 498 3275

If you have access to either a camcorder or a video recorder that can be controlled externally via a Sony 'Lanc' connector (also known as 'Control L') then Gold Disk's Video Director may be the answer to your video editing needs. Video Director is primarily a software-based system but Gold Disk do include a number of leads which allow your Amiga to communicate with any camcorder capable of reading control signals via the Lanc standard. Be very careful, however – there are about 10 or so different types of Lanc used within the camcorder market so make sure that Video Director handles your particular equipment before handing over your hard earned cash.

Once everything is connected up, the Video Director program allows you to define short snippets of video footage anywhere on a tape. These 'clips', as the program calls them, can then be arranged into order and when you come to 'assemble' your mastertape, Video Director automatically winds your source video backwards and forwards so that the correct snippets of footage is recorded onto your mastertape. It may not be perfect, but Video Director works. If it is compatible with your video set-up then give it a try.

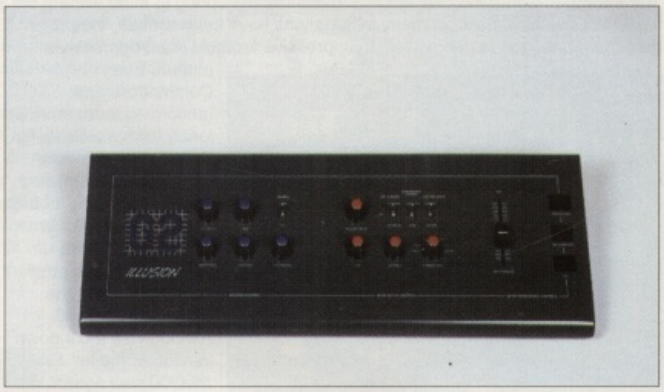


Gold Disk's Video Director provides a cheap and cheerful method of editing video on VCRs and camcorders equipped with Sony's 'LANC' interface.

85%

G2 ILLUSION

£995 G2 Video Systems 0252 737151



At the opposite end of the ChromaKey market is G2's recently released Illusion, a wonderfully powerful chromakey system that wouldn't look out of place in a professional video studio. Costing almost £1000, Illusion isn't cheap however, so you need to be able to justify its use if you're serious about spending this sort of cash. If you make money out of your desktop video set-up, however, Illusion is well worth considering.

Unlike the RocKey unit, Illusion has the benefit of being a completely standalone ChromaKey system that includes its own built-in genlock. It also produces (and processes) full broadcast quality video signals, so there's no reason whatsoever why this unit couldn't be used in a professional set-up. Illusion also benefits from full SuperVHS compatibility and so image quality is very good indeed. Add to this more controls than you'd find on the bridge of the Starship Enterprise and it's easy to see why Illusion has been selling so well. A recommended purchase for all professional videophiles.

84%

ROCKEY

£129.95 Silica Systems 081 309 1111

If you thought ChromaKeys were terribly expensive items then think again. Roctec, manufacturers of the highly rated 'RocGen' genlock, have come up with the RocKey, an inexpensive ChromaKey system that will allow you to create fantastic ChromaKey effects for very little cash. RocKey is designed to be used in conjunction with the RocGen genlock although it can theorectically be used with just about any genlock.

Like any ChromaKey system, you need to place the 'live' subject that you wish to key in front of a plain background that contrasts heavily with it. You'll obviously need a colour camcorder for this, so make sure that all these hardware requirements are taken into consideration when you finally hand over your hard earned cash. Once connected, however, it's a fairly easy task to adjust the ChromaKey so that the background behind the live subject is removed (good lighting is the key here!). From here on you can create all sorts of wondrous video effects such as ChromaKeying, simple overlay (the same as a genlock), luma key, key sandwich and many others. For the price, RocKey is an absolute bargain.

96%

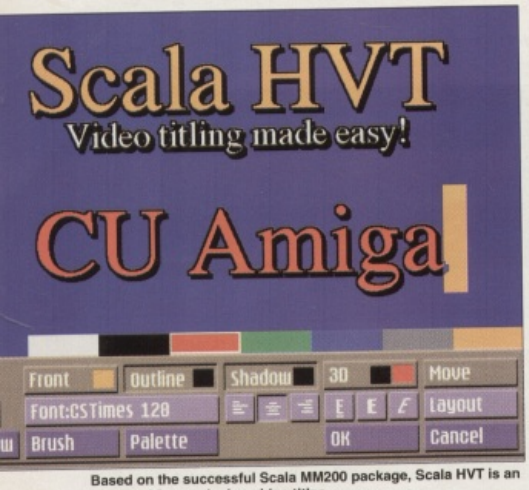
ChromaKeys

Adding a ChromaKey to your video set up can open up a whole new dimension to your video productions. A ChromaKey essentially carries out pretty much the same function as a genlock albeit in the opposite direction. Whereas a genlock places the Amiga graphics on top of live video, a ChromaKey removes the background colour from a live video signal and places it on top of your Amiga's graphics allowing you to create 'TV Weatherman'-style effects.

» SCALA HVT

£49.95 Silica Systems 081 309 1111

Think of video titling and chances are that *Scala* will spring to mind. During the few years that *Scala* and its many incarnations have been with us, the program has managed to carve itself an impressive foothold in an aggressive market. Even Commodore and (according to rumours at least) IBM use *Scala* for both their multimedia and video presentation needs. The 'baby' of the *Scala* range is *Scala HVT (Home Video Titler)* which was previously sold under the name of *Scala 500*. Although it's a cut down version of the full *Scala MM200* package, *Scala HVT* is still a titler to be reckoned with.



Based on the successful Scala MM200 package, Scala HVT is an ideal tool for producing video titles.

Scala presentations are based around a system of 'pages', each of which can contain a screen-full of titles. *Scala* includes its own built-in titler which, although essentially simple, is powerful enough for most people needs. Not only can it handle titles in a variety of different font styles, but you can also add outlines, shadows and 'raise' the title to form a sort of 3D effect. The only fly in its ointment is the fact that it can't handle scrolling text. For the average home user, however, *Scala HVT* is a dream come true.

94%

VIDEOSTAGE

£TBA Aegis Developments 0101 310 427 1227

The latest arrival on the video titling and presentation scene is *VideoStage* from those Amiga veterans, Aegis Developments. Based around the look and feel of Aegis' *Presentation Master, VideoStage* allows you to create entire video presentations that include static graphics, titles and even structured images designed using the program's own built-in drawing tools. What's more, you can even make use of animated brushes that whizz in and out of the screen at break-neck speeds and a whole range of professional-quality video wipes.

If you want a desktop video presentation program that can do it all, look no further than Aegis VideoStage.

Possibly the most impressive aspect of *VideoStage*, however, is its powerful video 'sequencer' that allows you to arrange and then rearrange your video presentation to suit your own particular needs. Although rather similar in use to *Scala*'s own 'page sorter', *VideoStage* takes this system one step further by allowing you to create modular presentations that can even call 'video subroutines'. That is, small sections of a presentation that can be called again and again from different points within your presentation. In all, a powerful package that is well worth the asking price.

88%

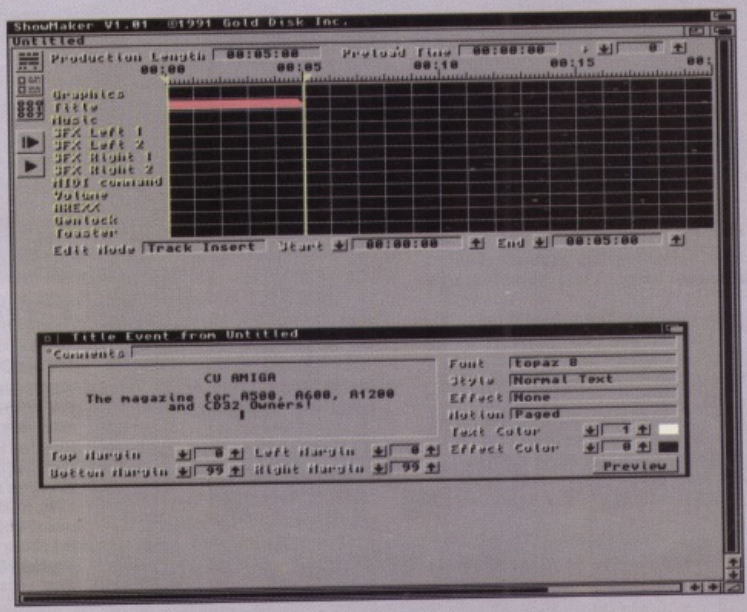
SHOWMAKER

£180 Gold Disk (UK) Ltd 071 498 3275

Gold Disk's *ShowMaker* package may be growing rather long in the tooth these days, but it's still a very powerful package that is as fresh as the day it was first released. Like Aegis' *VideoStage* (reviewed above), *ShowMaker* allows you to create full-blown video presentations although the range of different resources that your video production can call upon is considerably larger. Not only can *ShowMaker* handle static titles, images and animations, but you can even incorporate sampled sounds, MFF-format MIDI music files and control other applications via ARexx.

ShowMaker uses a very simple to use editing system that is based around a 'time line'. Events such as displaying a picture, playing a sampled sound, etc, are added simply by click on the point within the appropriate time line and then dragging out the event to set its duration. Both the start and end points of events can be fine tuned so your video presentation runs in perfect time. A powerful package at a reasonable price.

91%



Gold Disk's *ShowMaker* lets you create complex video presentation using a 'drag and click' time line editing system.

BIG ALTERNATIVE SCROLLER 2

£79.95 Alternative Image 0533 440041

The guys (and gals) at Alternative Image spend each and every day working on professional desktop video products and so you'd be right to expect great things from a package designed for their own personal use. The *Big Alternative Scroller 2* is a cheap and cheerful video titling program geared entirely to the task of adding titles to your home videos. The previous release of this program suffered terribly from jittery scrolling but thankfully AI have managed to sort this out in this new revision.

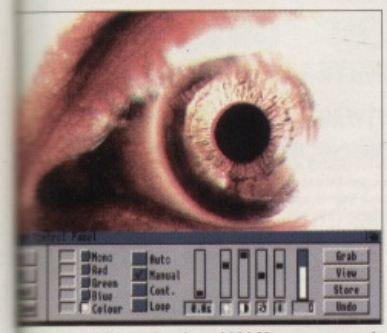
The program lacks many of the aesthetically pleasing features of full-blown video titlers such as *Scala HVT* but it more than makes up for any limitations thanks to its impressive selection of titling tools. As its name suggests, the *Big Alternative Scroller*'s forte is scrolling text and this it does very well indeed. Titles can be scrolled across and up the screen at full user-definable speeds. For simple titles, *BAS 2* is definitely worth checking out.

74%

VIDI-12 AGA

£99.95 Rombo Ltd 0506 414631

If you're looking for a low-cost video digitiser that can grab full colour images direct from any composite video source without the need for colour filters then look no further than Rombo's Vidi-12 AGA. As its name suggests, Vidi-12 fully supports the new VGA-style 256 colour and 262,144 colour HAM8 screen modes offered by the AGA chip set, making it a digitiser that is totally bang up to date. Although it can't capture full colour images in realtime, Vidi's built-in RGB splitter makes short work of grabbing colour images automatically. Monochrome images can be grabbed in realtime, however, making it an ideal tool for grabbing short digitised animations.



Rombo are soon to release two new realtime colour versions of Vidi called Vidi-12 RT and Vidi-24 RT which will allow you to grab full colour video footage in full colour. These will cost around £100 more than the basic Vidi-12 reviewed here so unless you need realtime colour digitising, this is the one to go for.

92%

V-LAB

£299 Amiga Centre Scotland 0896 87583

If you want the ultimate in Amiga video digitisers, then MacroSystems' V-Lab (marketed in the UK by ACS) is the answer. Available both as a plug in card for the Amiga 1500/2000 (and 4000, of course) and as an external unit for the rest of the Amiga range, V-Lab offers full colour digitising at 24-bit resolution from any composite or Super-VHS source. Image quality is very good indeed and images can be 'cleaned up' still further with V-Lab's excellent image processing tools. V-Lab may not be cheap, but it still represents very good value for money.

86%

You too can capture stunning images like this!

VIDEOMASTER

£69 HiSoft 0525 718181

Possibly the cheapest video digitiser available for the Amiga has to be AVR's VideoMaster, a small unit that connects to the expansion slot of any A500. Previously marketed by MicroDeal but now under the wing of HiSoft, VideoMaster combines a realtime digitiser and sound sampler in one box. Although the quality of digitised images isn't that great, VideoMaster can grab monochrome images direct from video tape in realtime and its powerful 'Sequencer' software allows you to produce wonderful animations with ease. Colour digitising is somewhat more involved – just like NewTek's ailing DigiView, VideoMaster can only grab from a monochrome video camera using colour splitters. Considering the price, however, VideoMaster is an ideal choice for any videophile on a tight budget.

63%

PRODUCT GUIDE TABLE

Genlocks

Product	Supplier	Price	RGB Passthru	S-VHS	Fade/ Dissolve	Broadcast Quality	Rating
MiniGen	Lola	£49.95	No	No	No	No	6/10
MiniGen Plus	Lola	£149.95	Yes	No	Yes	No	6/10
RocGen Plus	Silica	£139.95	Yes	No	Yes	No	8/10
VideoCentre	G2 Systems	£495.95	Yes	Yes	Yes	No	7/10
GeneSys	G2 Systems	£799.95	Yes	Yes	Yes	Yes	7/10
Rendale Super 8802	Marcam Ltd	£599.95	Yes	Yes	Yes	Yes	6/10
GVP G-Lock	Silica	£299.95	Yes	Yes	Yes	No	9/10

Video Editors

Product	Supplier	Price	S-VHS	Auto Assemble	VCR Control	Broadcast Quality	Rating
VideoDirector	Gold Disk	£149.95	Yes	Yes	Yes	No	8/10
VideoPilot V330	Aico	£1299	Yes	Yes	Yes	Yes	9/10

Chromakey Systems

Product	Supplier	Price	S-VHS	Key Control	Genlock	Fade/ Dissolve	Broadcast Quality	Rating
RocKey	Silica	£129.95	No	No	No	Yes	No	10/10
Illusion	G2 Systems	£995.95	Yes	Yes	Yes	Yes	Yes	8/10

Digitisers

Product	Supplier	Price	S-VHS	AGA	Realtime	Realtime Colour	RGB Splitter	Rating
Vidi-12 AGA	Rombo	£99.95	No	Yes	Yes	No	Yes	9/10
V-Lab	ACS	£299	Yes	Yes	Yes	Yes	Yes	8/10
VideoMaster	HiSoft	£69.95	No	No	Yes	No	No	6/10

Titling Software

Product	Supplier	Price	Amiga Fonts	Scrolling	Brushes	Wipes/Fades	AGA	Rating
Scala HVT	Silica	£49.95	Yes	No	Yes	Yes	No	9/10
Big Alternative Scroller 2	Alternative Image	£79.95	Yes	Yes	Yes	No	No	7/10

Presentation Software

Product	Supplier	Price	Titler	Fades/Wipes	Multi-Pages	AGA	Animations	Sound	Brushes	Timing Control	Rating
VideoStage	Aegis	£TBA	Yes	Yes	Yes	Yes	No	No	Yes	Yes	8/10
ShowMaker	Gold Disk	£180	Yes	Yes	Yes	No	Yes	Yes	Yes	Yes	9/10

SUPPLIERS

Silica Systems	**081 309 1111**
Gold Disk UK	071 498 3275
G2 Systems	**0252 737151**
Alternative Image	0533 440041
Marcam Ltd	**0602 790466**
Aegis Developments	0101 310 427 1227
Aico International	**0635 49797**
Lola Marketing	0858 880182
Rombo	**0506 414631**
HiSoft	0525 718181
ACS	**0896 87583**

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WARNING

Due to the exchange rate, or manufacturer's changes or due to current RAM shortage, some prices may alter, either up or down, during the several weeks between going to press and the end of the month of issue. We would ask that prices be confirmed by telephone before ordering.

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A1500s FROM £199

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A3000s.....from 499
CDTV.....179
A590 20/40MB....129/159
HDs + Controllers...from 179
GVP HD8 40/52.....209/229
XT/AT BBoard.....50/91

OTHER ACCESSORIES - PLEASE ASK.
*Acceptance of pre-V2 machines may be limited

A500/600/CDTV

STARTER PACK
A Must for new users!
Microswitched joystick, "Get the Most from your Amiga" book, 10 Blank discs, 80 capacity lockable disc box, mouse mat, dust cover, Virus Killer.

A500+ and A600s come complete with mouse, modulator to connect to TV, or monitor lead as required, all cables, manuals, operating discs and utilities

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	INCLUDED AS STANDARD	ALONE £	PLUS STARTER £	WARRANTY	EXTRAS
A500+ 1MB		179.99	194.99	12 months return to base	Extra 1MB £25
A500+ CARTOON CLASSICS	CAPTAIN PLANET, LEMMINGS, THE SIMPSONS, DPAINT III*	194.99	209.99		
A600 SD 1MB	-	174.90	189.90		Extra 1MB £35 • 2Mb PCMCIA £109 4MB PCMCIA £169 • Ramsharer £45
A600 SD WILD, WEIRD AND WICKED	SILLY PUTTY, F1 GRAND PRIX, PUSHOVER, DELUXE PAINT III*, 700 CLIP ART SET	194.99	209.99	12 months at home	
A600 HD 20	-	259.99	274.99	12 months return base	
EPIC PACK PLUS 40	EPIC, ROME, MYTH, TRIVIAL PURSUIT, AMIGA TEXT, DELUXE PAINT III*, 700 CLIP ART SET	274.90	289.90		
EPIC PACK PLUS 64		339.99	404.99		
EPIC PACK PLUS 85		389.99	404.99		
A600 HD 80	-	365.99	379.99		
120		415.99	429.99		
210		569.99	584.99		
CDTV MULTI MEDIA	AUDIO DISCS/CD PLAYER, KEY'D, FORIVE, MOUSE, REMOTE CONTROLLER, CADDY, WELCOME DISC, FISH DISC	229.99	244.99		Brickette PIP Monitor to TV Converter £45 – £99
CBM 1084 SD	+ LEADS	178.90		1 year	
CBM 1940	LEADS. IDEAL FOR AGA	269.99		1 year	
Philips 8833 II	LEADS. T & SWIVEL £10	209.99		1 year at home	
Star LC100C	TOP VALUE 9 PIN COLOUR PRINTER	149.99	159.99	1 year	
Citizen 240C	24PIN COLOUR	252.90	262.90	2 year	

Return to base HD versions are SD units fitted with top quality 3rd party drives and come with install disc + full documentation. *DPIII needs 2MB for animation on HD models.

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For years a major player in Amiga Mail Order, Hobbyte also boast extensive expertise and experience in specification and support of multi-machine and specialist systems. Hobbyte have been recommended and trained by Commodore and successfully won major orders and support contracts from London Boroughs, MOD, educational establishments etc. We are pleased to be placed on tender lists.
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A4000/ 30 & 40

A4000/30: AGA Chip Set + 68030 processor, 68882 25/50 MHz co-processor option, 256,000 colours from 16.6M, scan doubling for flicker free display, Mouse, Amiga 3.5"/1.76 MB 3.5" drive, Hard Drive as below, Amiga DOS 3.0 system and utilities, **Next day on-site warranty**

A4000/40: As above, but featuring the blistering 68040 processor, with full floating point facilities **NOT** EC version. UK models with on-site warranty...**NOT** imports!

TRADE IN AVAILABLE

HD SIZE MB	A4000/30 1+1MB SUBTRACT £70	A4000/30 2+2MB STANDARD VERSION	A4000/30 2+4MB SUPER EXP. VERSION	A4000/40 2+4MB	EXTRAS
80		965		1889	Extra 2MB for 2+2 versions £99 • Extra 4MB for 2+4 versions £159 • Microvitec Cubscan 1440 recommended £395.99 • Same day warranty £39.99, extra 2 yrs £99.99
120		1054		1915	
160		1079 SPECIAL		1959	
240		1149		2139	
340		1279		2299	
540		1599		2459	

WARNING - 1 + 1MB A4000s will not run most serious AGA s/w packages. If required, subtract £70 from 2 + 2MB prices

ADD £80 • ADD £80 • ADD £80
2 + 4 MB version comes with 2MB chip RAM + one 4MB chip of fast RAM, for on-board expansion to 16MB. We do not fit two x 2MB chips of fast RAM, which gives on-board expansion of only 8MB.

A4000/30 CO-PROs
68882 25 MHz.....ADD £70
68882 50MHz.....ADD £160
Fitting FOC if purchasing A4000

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CD32 SOFTWARE

15 to 20 titles specially written for the CD32 should be in stock by the time you read this, including Syndicate, Zool 2, Jurassic Park, Chaos Engine, Robocod, many of which include a full CD music track alongside the game. About half of existing CDTV titles are compatible. CD32 will also play normal music CDs and CD+G discs

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12 months on-site warranty £39.99
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CD32 Console (with Oscar AGA, Diggers +Joypad FREE)
£279
CD32 + FMV Card as above
PLUS FREE MUSIC VIDEO DISC
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COMING SOON
Floppy drive, Keyboard, Mouse CD32 for A1200

A1200

1200 2MB	269
1200 +20MB HD	379
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1200 +120MB HD	519
1200 +207MB HD	589
Extra 4MB + clock fitted	ADD £200

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Noddy's Playtime OR Big Adventure OR Merlins Maths	8 magical learning games at 3 levels, PLUS Junior Art pack, keyboard overlay and map 6 National Curriculum oriented games, stage 2, 7 to 11
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Fun School 3 or 4 OR ADI Jar Reading OR Counting	The loveable extra terrestrial entertains 4 - 7 year olds and helps towards achieving National Curriculum levels 1, 2+ 3
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The top-selling Hobbyte Hot Lot pack now includes the ultimate joystick !!!
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"THE BUG"	The only joystick ever to be given a Gold rating 92% AF, positive single-handed action, small and lovely!
10 "Hot List" Games The GREATEST!	See listing to the right for current HOT LIST, or phone for latest changes. Children's games available.
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Easy Amos	THE programming language. Wonderful manual is simple and entertaining - ideal for complete novices
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Perfect for all Home Office needs
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Virus Killer Disk, 80 Prog. Hobbyte PD Greats Pack - see 'Hottest Lot Pack' The Works Platinum Deluxe Paint III* with animation + 700 Clip Art pics Digita Home Accounts Any Two Hot List Titles	WP with UK spell chck, Thesaurus spreadsheet, 'Sideways' utility, database, graphics + comms module Keep track of credit card and bank accounts, budgets, etc

THE HOT LIST
GREAT individually packaged games, BETTER THAN THE REST !!
(previous RRPs up to £39.99 each)
ANY 10 £29.99
Or see packs across
Thunderbirds (7yrs+) ‡
F1 Grand Prix - 92% AF
Silly Putty - 90%+ lots of magic
Elf/Toki/Puzznic (counts as 2) ‡
Paperboy II ‡
Hunt for Red October
Colossus Chess @
Challenge Golf
Battleships classic board game
Graeme Souness Soccer
Neighbours
Frankenstein ‡ @
Captain Planet
Silkworm Helicopter 93% @
Edd the Duck ‡
Stack Up ‡
Lemmings 92% AF
Round the Bend ‡
Continental Circus - 8 race circuits 92% AA@
World Cricket
Bart Simpson
Spiderman/Cptn America ‡ @
Ice Hockey
Xenon - C+VG Game of the Month
Blade Warrior - A Power, AF, Ahoy superb reviews
Toobin Rapid riding
AWARD WINNERS
Space Ace, Kick Off, PipeMania, Prophecy (counts as 2)

‡ PARTICULARLY SUITABLE FOR CHILDREN (MAY NEED HELP)
@ NOT A1200 COMPATIBLE
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STOP PRESS! Desktop Dynamite AGA pack (see 1200 box) £69 with Amiga £79 alone

*DPIII needs 2MB for animation on HD models

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CBM 1942 dual sync .28 dpi AGA monitor + speakers 369.99

MICROVITEC CUB-SCAN 1440 14" .28dp for 1200/4000, infinately variable scan rates between 15KHz (default on boot-up) and 40 KHz for all AGA modes in this range. With tilt and swivel stand. *CUA BEST BUY* 399.99
Microvitec Cub-scan .28dp for 1200/4000 as above, but 20" 1079.99
Microvitec Cub-scan .1782, 17", .27dp, 29-82 KHz horiz. scan 889.99
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Philips Brilliance 2110 21" ..... POA

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PC 8808 as above, Cyclone compatible 64.99
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500

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M1230XA 40MHz 4MB 429.99
M1230 XA 50MHz 4MB 519.99
Microbotics VXL30 25MHz 219.99
VXL 30 40MHz 339.99
2MB Burst RAM for above 179.99

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	SELF FITTING* (on-site invalidated)	CBM APPROVED FITTING** (with on-site)
20MB	85	-
40MB	145	-
60MB	175	199
80/85MB	189	249
120/127MB	245	329
240/250MB	349	499
INTERNAL CLOCK		POA

*with cable & disc ADD £14.99 for Hobbyte fitting
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GVP IV + VIU-CT 1255.99
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Genlock £199
*H2000 Plus £1479
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FREE V lab Framegrabber with Harlequin Plus
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Similar to Piccolo but with 4MB video RAM, programmable resolution to 1600 x 1280, built -in video controller inc. 110MHz clock. With FREE TV Paint Jnr.

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Take 24 bit animations from disc or other storage devices and replay in real-time through the Amiga! Use integrated genlock to overlay Amiga graphics for sophisticated titling and special effects, to produce stunning promotional/training videos, or games with live video footage. Near SVHS quality, 16.7M colours, MPEG tools + library functions, 25 frames/sec playback.
YC Output module for Peggy £129.99
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24 bit board v2+ Opal Paint, Opal Presents, Opal Hotkey, Opal AminMATE 589.99
ALSO WITH IMAGINE SOFTWARE
IF YOU HAVE PURCHASED OPALVISION, YOU MAY HAVE RECEIVED VOUCHERS AGAINST THE FOLLOWING NEW PRODUCTS., WHICH WILL BE ACCEPTED BY HOBBYTE IN PART PAYMENT
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Video Suite for Opal Vision WITH VOUCHERS 647.99
Scan Rate Converter for OpalVision WITH VOUCHERS 647.99
Retina 24 bit graphics card + 1MB + VD Paint 339.00
Retina 24 bit graphics card + 2MB + VD Paint 395.00
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V lab 24 bit real time digitiser 1200/600/500 ext 334.99
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FREE with Harlequin

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Emplant 245.90
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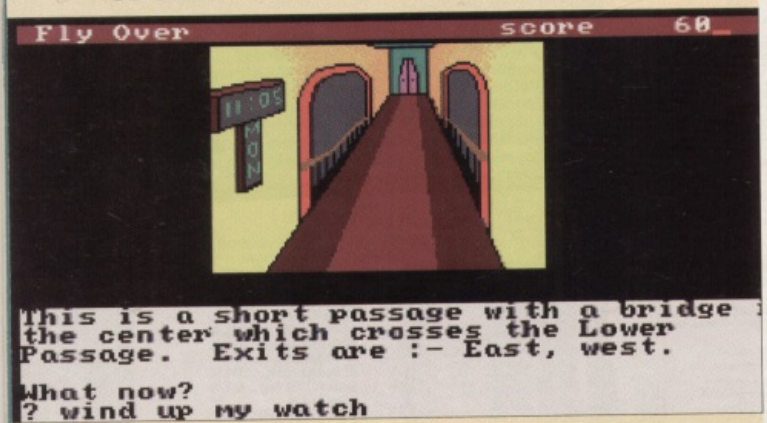
Education

From pre-school software to programs that follow the National Curriculum, educational packages have become ever more sophisticated. No matter what your interests, there will be a program that's tailored to your educational needs.

COOMB VALLEY SOFTWARE


Fly Over
score 60
This is a short passage with a bridge
the center which crosses the Lower
Passage. Exits are :- East, west.
What now?
? wind up my watch

Ian Lycett-King once sat down at his Atari ST and wrote a small adventure game on STAC for his children to play, which would teach them some basics of mathematics. Before he knew it, he had a thriving business, selling educational adventure games on both the ST and the Amiga (converting the ST games using AMOS). A couple of years later, and Coomb Valley Software are seven games in, and at just under fifteen pounds apiece, you could do a lot worse.

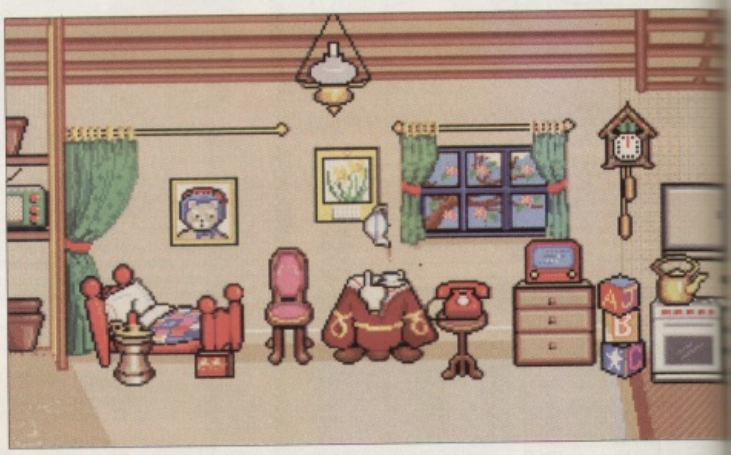
Starting with *Maths Dragons*, and working through *Reasoning With Trolls, Cave Maze, Picture Fractions* and coming up to date with *Time Flies*, each of the games follows the same basic pattern – you are placed in a small maze, with a collection of items scattered about the place, and you have to locate the items and return them to their correct places. In *Tidy The House*, you need to find all the objects in the wrong places, and return them while dressing your younger brother and sister, while *Picture Fractions* has you searching a goblin maze for pieces of a jigsaw puzzle.

In most of the games, the actual educational part comes when you meet other characters. Generally, when you have collected a piece of whatever it is you are after, you will be interrupted between rooms with the message 'You have met a ...' and asked to solve a problem. Get it right, and the other person leaves. Get it wrong and the other person leaves, taking one of your objects with them.

As I've said, the whole thing has been written in AMOS, and is fairly simple in design. As a result, both the parser and the graphics used within the games leave a lot to be desired. Let's face it, the visuals are awful. At best, they are merely badly drawn images. At worst, they are completely unrecognisable. Likewise, the parser rarely extends above two dozen words, and you only really find yourself using a few of those.

Of course, the basis of all these games is the actual education part itself, and this is what lets most of the games down. The basis of many educational games is to present the problems in an involving and enticing way. These just pause the game and stick a sum on screen. Sorry, but that's about as welcome as a math's exam in the middle of *Uridium 2*.

67%



NODDY'S BIG ADVENTURE
JUMPING BEAN CO. £24.99

Unlike most educational packages, *Noddy's Big Adventure* doesn't aim to teach children anything in particular. Aimed at the pre-school crowd, this interactive creativity pack simply helps a child develop his or her creative skills through a series of fun games and activities. Like the first Noddy game, *Noddy's Playtime* is essentially a collection of a dozen or so games, strung together as locations in Toytown. Drive around the large scrolling map, until you come to a taxi rank, and then park to enter one of the four main locations – beach, house, Monkey village and Goblin village.

Once in a location, you are shown a still scene from the area. The nice thing here is that you can have fun just finding out what animates when you click on it, and what doesn't. Occasionally when you click on something you'll be asked if you want to play a game – this is how you take part in the actual educational part of the game. Games such as Can You Find Me, Noddy's Scales and Beach Sorter teach children to choose between similar objects, grasp simple maths and English, but essentially develop hand to eye co-ordination and basic organisational skills.

Noddy's Big Adventure is a major improvement over the first Noddy game. The whole structure of the package flows in a more logical way, with the animated linking scenes offering interesting ways to move through the package. The three difficulty levels makes it ideal for anyone from the age of three upwards, and the extremely simple interface means that anyone from the age of three upwards is going to be able to use it unaided. Loads of fun and very entertaining, *Noddy's Big Adventure* is a great bit of kit.

86%

ADI MATHS - 11/12 YEARS
EUROPRESS SOFTWARE £25.99

If someone offered to introduce you to a 'loveable extraterrestrial who will... act as your alien tutor as well as your computer-based friend... He will always be on hand to help you with your problems, give you advice and reward you with games,' you might think they'd read Douglas Adams' hitchhicker's Guide to the Galaxy once too often. This enthusiastic gushing does not come from the marketing department of the Sirius Cybernetics Corporation, however, but from Europress Software, and is about ADI, the interactive animated character who fronts its eponymous series of educational programs.

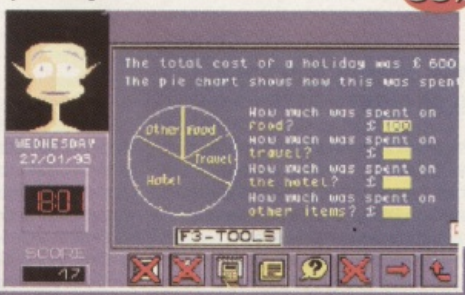
Besides being your plastic pal who's fun to be with, ADI can be a stern taskmaster, posing a wide range of mathematical problems. His tests cover parts of the mathematical course 11 and 12 year-old children will face during that difficult first year of secondary education. Techniques of calculation, percentages, geometric constructions, symmetry, algebra, and statistics are just some of the elements included in this package, based loosely around the theme of the Seven Wonders of the World. The ADI series, designed to accompany what kids learn at school, covers many parts of the National Curriculum, and partially fulfills many more. These problems are no push-over and, believe me, it's a humbling experience to be reminded just how much mathematical knowledge you have forgotten since facing your O Levels (Don't worry - I did pass the Maths one at the time!). I suspect many parents who buy this program will feel similarly if they have a go themselves.

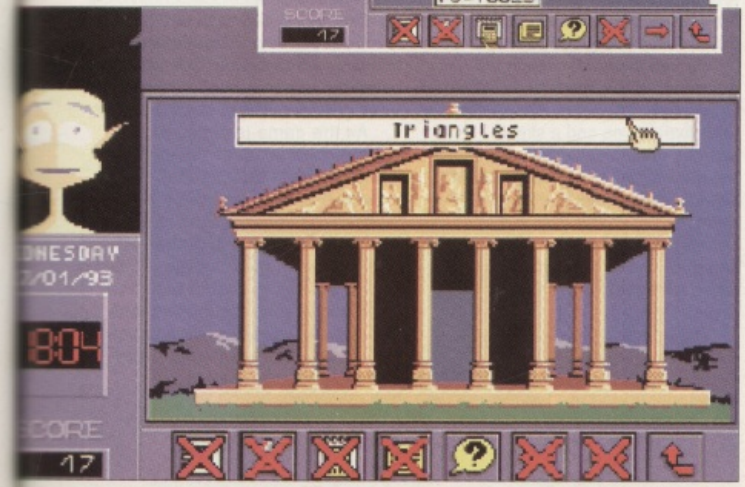
Recognising that a computer-based tutor can't put kids in detention, ADI has nine different games which are made available to his pupils in proportion to the number of points they score by answering questions correctly – a carrot and stick-at-it approach, you might say. ADI offers on-screen background info on the subjects he covers, and a norebook and calculator to help the resolution of problems. His usually encouraging textual comments can become angry if a pupil persistently answers a question incorrectly. The Help mode could, perhaps, have been improved for such circumstances - I did not notice ADI's advice becoming progressively detailed with repeated failure on a particular question, which I would have expected.

ADI also provides a 'mini-encyclopedia' of simple animations on a miscellany of topics children often wonder about: the origin of man, birth, the flow of blood, planets, the food chain, and volcanoes, for example. A basic atlas of Europe is also included.

In terms of the standard of graphics and sound, ADI does not come near the potential of the Amiga: ADI's 'whistly voice', for example, is actually an ear-piercing shreik of the sort produced for Doctor Who by the BBC Radiophonic Workshop, circa 1970. Genuinely unpleasant to listen to, switch it off unless you want to scare the kids away. In terms of layout, however, each element of this icon or keyboard-controlled package is clearly explained and easy to use. Overall, it is an extensive teaching tool which will help children come to terms with difficult concepts through explanation, effort and encouragement.

88%





THE WORD CONSTRUCTION SET
LASCELLES SOFTWARE - £24.95

This is an unusual education package to review in that it isn't for kids. *The Word Construction Set* is designed to help English students understand the way words and sentences are constructed, along with all the other little quirks in this fine language of ours, such as the various vowel sounds, plurals, extended endings and so on. The eventual aim is to assist students in reading and speaking English, but one main oversight on the part of the designers renders the package almost completely unusable.

But first the game itself. The main screen shows you seven different buildings under construction, and you have to work through each of these, building each tower by performing specific tasks. For example, in Castle Endings, you have to stick the correct ending onto plurals and singular words according to tense. Every time you get a word right, another block is added to the building. Similarly, the Homophone Observatory teaches you to differentiate between words that sound the same, but have different meanings, such as Pear and Pair.

In each game you are given three sets of small words or parts of words, and a crane with which you stick the pieces together to hopefully create the word the computer is asking for. This is where the major problem comes in. Obviously it would be too easy on the student if the Amiga printed the word it wanted on screen. Instead, the program uses the Amiga speech synthesis to 'say' the words, and everyone who has ever used or heard the Amiga Speech program will know just how unintelligable it can be – a bit of a hinderance when you're trying to teach someone a foreign language. A bit like Arthur Mullard trying to teach French really, pointless.

51%

KIM - THE MEMORY GAME
LASCELLES SOFTWARE - £24.95

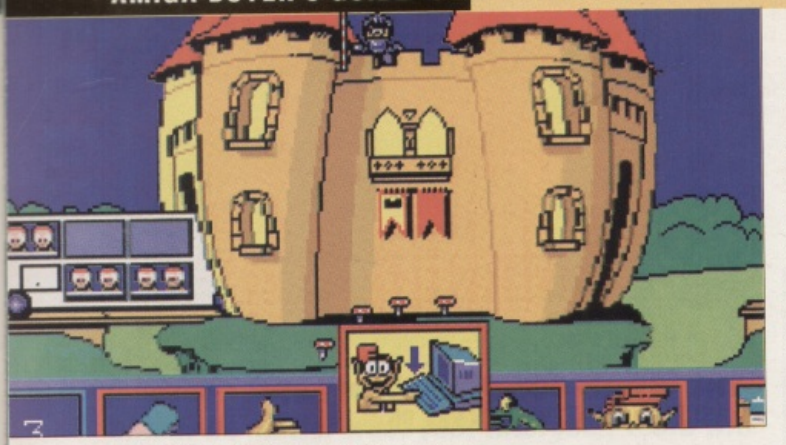
Kim, the game, is based upon Kim, the Rudyard Kipling character who can correctly remember the patterns etched onto twenty stones in a bag. In the game you have more visual icons to play with, but the principal is the same. You are shown up to ten different tiles, and have to remember what they are. Then the screen is filled with twenty different tiles, and you have to pick out the ones you remember. Simple, yes, but far from easy, particularly for the young age range this is aimed at.

There are twelve different sets of tiles for you to play with, ranging from animals to flags to shapes and colours, and each can be viewed as pictures or words. This way you can develop either your shape recognition skills or your reading skills, while at the same time sharpening your memory. As you play, your score is totalled until it is high enough to be entered on the Honours List, and all the way through you are supported and encouraged, both by the sentences that appear on screen, and the sampled woman's voice that

states your progress.

But such congratulation and support only appears once you have done the task, and the actual words that appear on screen are so small that they might as well not be there. This program has a few niggling flaws like that when it comes to design. For example, at the start of the game you are asked to enter your name, but then it never uses it until you get on the high score table. Although it isn't a bad package at all, it's still a few steps behind something like *Paint And Create*.

72%



ADI JUNIOR COUNTING
£25.99 EUROPRESS SOFTWARE

Fronted by ADI Junior, the sprightly little cousin of ADI, this package targets the basic mathematical skills of two younger age groups – four to five year-olds and the six to sevens. The colourful menu screen, through which all the aspects of the program are accessed, is actually an animated picture. Practically all the objects shown respond in one way or another when clicked on with the mouse, enticing the user further into the program by intriguing them as to what will happen next.

With 15 activities for each of the age groups this product is aimed at, *ADI Junior Computing* gives a pleasant introduction to the basics of adding-up and taking-away. Three levels of difficulty allow the child to progress through subjects like counting objects, identifying numbers by word and figure, and painting by numbers. One of the tasks, for example, involves counting the number of sightseers who visit a castle – if the comings and goings are kept track of the end sequence shows a knight walking round his home switching off the lights. In another part of the program, for junior counters increasing in confidence, a series of sums may be undertaken against the clock.

There are, in addition, plenty of activities to be done which are unrelated to maths – a car racing game, jigsaws, and identikit faces may all be played with. The graphics are bright and entertaining; the range of sound effects is both wide and of high quality. The voice which speaks the advice given to users when they press the Help key is exceptionally clear, albeit in a cutesy American way, which is sure to help ADI Junior give the intended impression of a helpful and instructive playmate. An activity-packed program which really does make learning fun, this excellent piece of software is thoroughly recommended.

91%

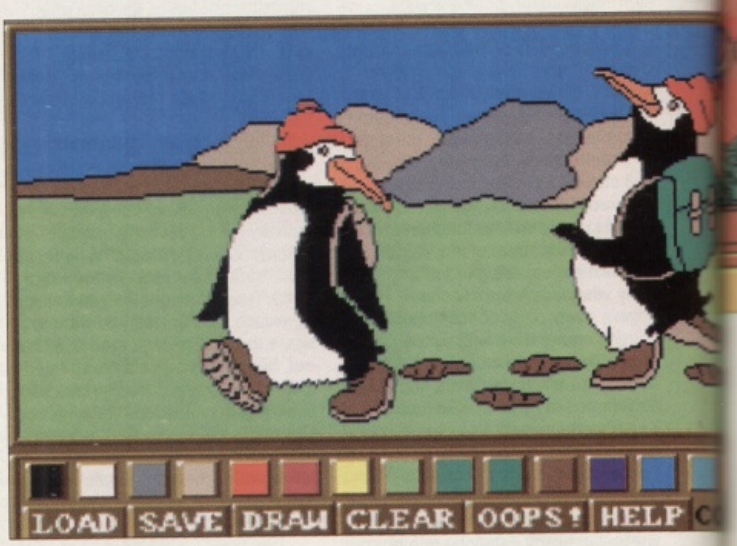
PAINT POT 2
£19.99 KIDS ACADEMY

As an art package aimed specifically at children, *Paint Pot 2* may be seen as falling midway between the drawing elements of *The Shoe People* and more sophisticated art programs, such as *Kids Pix* Unfortunately, its price and comparitively limited range of functions prevent it from being an adequate competitor to either.

Aimed at four to ten year-olds, *Paint Pot 2* allows the user to draw pictures frehand, and take the short cuts offered by line, box, circle, and ellipse drawing tools. *Paint Pot 2* is, in fact, as much a colouring-in program as a drawing one – it comes with about 20 line drawings ready for loading and filling-in. The colouring is an easy process thanks to the fill tool which is also available. A total of 16 colours may be used to construct any particular painting, and the tones of each may be varied, allowing for a far larger number of colours to be used (although still no more than 16 for each drawing, of course). The pictures can also be saved and printed.

The main tune and sound effects are competent and the presentation is appealing, but this program's only real plus is its ease of use. If your child has even vaguely serious intentions of drawing on a computer, you would be better off buying *Kid Pix* or, if they're in their teens, a copy of *Deluxe Paint* or *Brilliance*.

43%



THE SHOE PEOPLE
£9.99 FIRST CLASS

The Shoe People is based on the 'award winning' cartoon series – which I freely admit to never having heard of. If your four to six year-olds are fans, however, and even if they're not, they are sure to enjoy this varied package of activities.

Geared towards meeting the guidelines of the National Curriculum, *The Shoe People* contains five games and a simple drawing and colouring program. In the drawing section, kids can even save their drawings to disk, print them (if your printer's up to it, of course), or print out the selection of line drawings included for old-fashioned felt-tip and crayon style colouring-in.

The games all feature Shoe People, like Trampy, PC Boot, Wellington, Baby Bootee, and Sergeant Major. They help introduce kids to the basics of English, maths, shapes and patterns through a series of tasks such as associating words with objects, spelling those words, differentiating between upper and lower case letters, arranging similar blocks in groups, and solving simple anagrams. Different levels of difficulty are available for each game, allowing a clear path of development for a child to follow.

As the game is aimed at such young children, Clever Clogs (Shoe Town's Educational Adviser), makes no bones about recommending that 'grown-ups' go through the games together with the kiddies in their charge. That shouldn't be too hard a task: the pleasing graphics, amusing little animations, good music and sound effects make this a highly entertaining package. Highly recommended.

89%

SPELLING FAIR
£25.99 EUROPRESS SOFTWARE

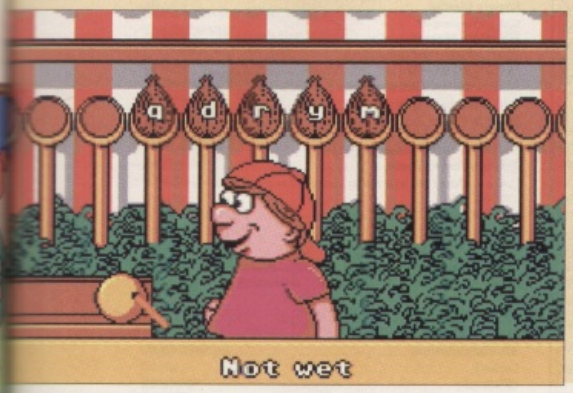
It's well known that spelling is a major problem with school children and particularly the spelling of certain words like 'weird' and 'ceiling'. This selection of useful games aims to help that particualr problem, using a fairground setting for the tests.

Starting with the Coconut Shy, you are shown a selection of letters on the front of coconuts, within which is a word. At the bottom of the screen you are shown the meaning of the word, and you have to knock off the extra letters leaving only the required ones. After that there's the Word Juggle, where two jugglers rearrange letters to form words; the Mechanical Grab, where you can practise prefixes and suffixes; and even learn about homophones (words that sound the same, like 'Where' and 'wear') in the Haunted House.

Each game is played across three levels of difficulty, and offers small bonuses for success as part of an incentive package. For example, in the 'Test your strength' game, after four bells have been wrung people step out from behind the posts and burst into applause. Similarly, in the coconut shy, the coconuts dance when you get words right. Get things wrong, and you get to see an amusing animation,but this is done in a way that isn't disheartening.

All in all, it's a well put together package for the slightly older group (7 to 13), and it tackles the problem well. Once again, it comes from the Fun School team, so it can't be bad.

84%



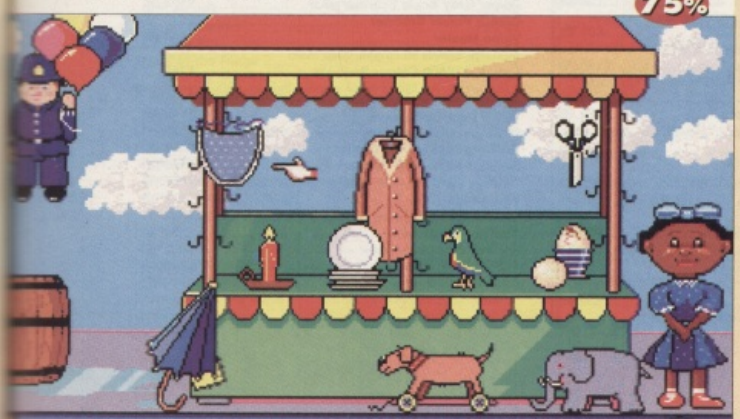
NODDY'S PLAYTIME
£25.99 JUMPING BEAN

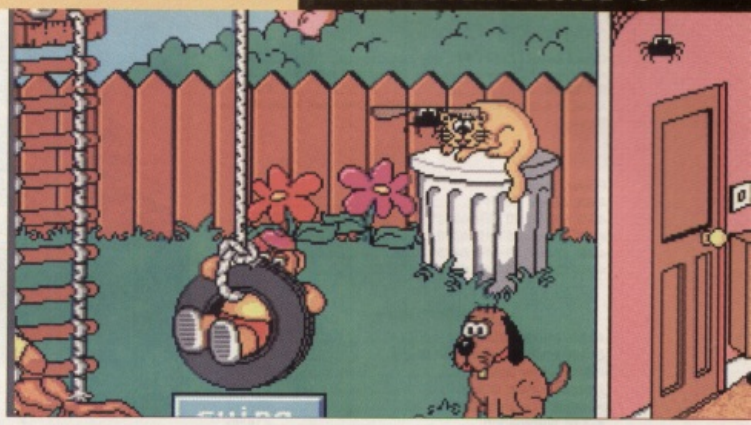
In the world of children's games, can any license be as sought after as the Noddy one? Well, yes probably. I don't know about you, but from where I'm standing Noddy's a little old hat. Still, that didn't stop Jumping Bean picking him up and sticking him in quite an inventive piece of software.

Aimed at children between the ages of three and eight, *Noddy's Playtime* aims to teach the basic skills, such as picture recognition, along with some simple logic abilities. This is done through a series of eight games, based in various buildings around Toytown. In the farm, you have to match the front and rear ends of animals so that they'll get fed. In the factory, you are shown five similar items and a picture of the kind you want, e.g. an ice cream with a red cherry but no wafer. Using the mechanical crane you have to knock off any wrong items.

The whole thing is linked by Noddy driving around Toytown, and this is full of nice little keyboard touches, such as pressing the 'B' key to cause the car to brake sharply, complete with sound effects. However, this is where I think things might be a little too much for younger children. It's a large map, and you're given no indication of where the games are. You can choose to skip to the games, but that removes the continuity. Other than that, it's a fine piece of software, and one stimulating enough to capture the imagination of the older end of the age group.

75%





PAINT AND CREATE
£25.99 EUROPRESS SOFTWARE

This is a superb piece of software and one that no five year old should be without. Rather than trying to tech children, this package aims to stimulate their imagination with a collection of games designed to aid creativity. Put together by the Fun Shool team, you'd expect it to reek of quality anyway. And it does, with polish liberally slapped all over it.

The menu is a large four-screen picture, filled with objects that animate when you click on them, such as the sun, a cat, a dog and a telephone. The games themselves are easy to find – to play the jigsaw you click on the teddy piecing together a jigsaw. The large bright graphics are something smaller children will identify with and I feel that the package could be just as useful for children younger than the five years recommended.

As well as the jigsaw section, you've got a mini art package for budding Leonardos, Monster Maker, where you can put body parts together to create the scariest monster possible, and then run a little animation to see how scary it really is. There's a Card Creator, where you can piece together Christmas/Birthday cards and then print them out, but my favourite has to be the Teddy Karaoke. Here you can put a band together by picking the instruments and musicians to play them, select the music for them to play, and then put them on 'Top of the Teds' to see how well they do. Essential software.

94%

10 OUTOF10 ENGLISH
£25.95 10 OUT OF 10

Meeting the demands of the National Curriculum, whilst retaining the emphasis upon the more traditional elements of English language teaching, is the aim of this game-centered package.

Unusually, perhaps, this product is not aimed at a highly specific age range, instead, it is ability-based, with the level of difficulty of the puzzles embracing junior school standard as well as that of kids preparing for their GCSEs. The six games test the user in ways that will undoubtedly stretch most people's literacy skills: spelling, identifying collective nouns, spotting missing words or letters, matching rhyming words, and so on, form the content of the puzzles on offer. It is even possible for intrepid parents or teachers to write new questions for one of the games, enabling them to customise it to stress what they consider to be the most important points for the child player to learn. The leaflet accompanying the game makes it clear that the program aims to cover the long-familiar elements of language teaching, including punctuation, verbs, adjectives, nouns, sound patterns and figures of speech.

The games will appeal to kids who are devotees of crosswords, and word search puzzles rather than the usual platform fare, but quick reactions are still necessary to impress the scoring system in many of them.

Graphically unexciting and with unremarkable sound, this product nevertheless remains an interesting attempt to put vocabulary and grammar in a computer game context.

72%

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• A500/A600/A1200 Dust covers	£4.99
• A500 Modulator	£36
• Mini Office package	£54.99
• Supra 2400 Modem	£89
• Supra Fax Plus Modem	£148
• Supra v.32 BIS Fax Modem	£358

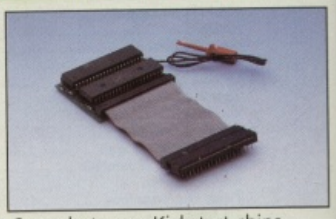
Scanners

- Allows image processing in a useful and unique fashion
- Comes complete with operation manual
- One of the fastest growing applications for home and professional users
- High specification coupled with cost effective pricing

- **Power Handling Scanner**
- 64 greyscales 100-400 DPI
- Thru'port to printer
- Fully compatable with Delux Paint 4, etc.
- Advanced software

• Power Hand Scanner v3.0	£96
• Power Hand Scanner Colour	£229

Pro ROM Swapper



- Swap between Kickstart chips
- Fits A500, A500+, A600,A1500
- Auto swapping via keyboard control
- Flexible cable allows the swapper to work in conjunction with accellerators etc.
- Simple to fit - full instructions

• Pro ROM Swapper	£18
• Pro ROM Swapper + 1.3ROM	£37
• Pro ROM Swapper + 2.04ROM	£40
• Workbench 2.04 plus manuals	£49

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CHNICAL EXCELLENCE

Est. since 1984

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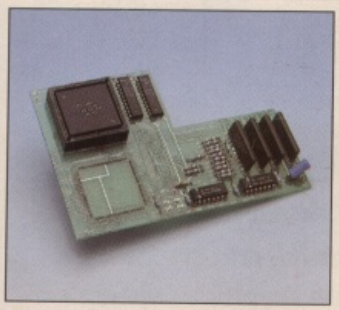
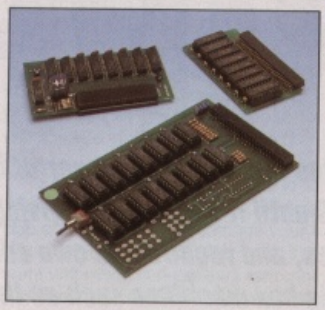


Pro Agnus 2MB

• Provides a full 2MB of Chip Memory for the Amiga 500 and A1500/2000 • Designed and built in England • Supplied with 8375 Obese Agnus • Includes 2Mb Memory on board in the form of low power Zips • Allows the processing of elaborate animation and sound sampling • Provides the same max. chipmemory as the A3000/A600 &500+ • Increases addressable memory space from 9MB to 10MB • Complete with full instructions and flying leads • British made

• Pro Agnus 2MB **£139**
(Free fitting available - Phone for details)



A500 Memory Expansions

A500 Pro-RAM 0.5 Meg. Upgrade
• Allows 1MB software to run
• Chip memory compatible
• British made

• Without clock **£16**
• With clock **£19**

A500 Pro-RAM 1.5 Meg Upgrade
• Gives a full 2MB of memory **£74**

A500+ 1MB Meg Upgrade **£29.95**

High Current Power Supply

• Allows the addition of peripherals without damage to computer or power supply
• Why risk damaging your expensive kit when one simple investment will ensure total peace of mind now and for the future
• Switch mode design
• Full crow bar projection
• British made

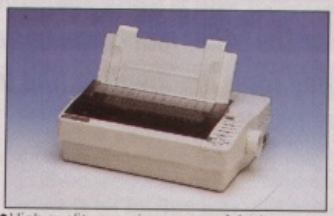
• A600 Power supply unit **£44.95**
• A500 Power supply unit **£44.95**
• A590 Power supply unit **£44.95**
• A1200 Power supply unit **£54.95**
• A2000 Power supply unit **£99.95**

Cumana 3.5" External Drive

• High Quality
• Renowned and proven reliability
• Top notch specification
• Anti-click
• Long moulded cable
• Slimline design
• High impact plastic

• Cumana external drive **£59**
• Cumana external drive + 100 capacity disk box **£62**
• Cumana external drive + 100 disk box + 20 blank disks **£68**
• A500/A500+ Internal replacement disk drive **£46**

Printers



•High quality premium range of Amiga printers
•Two year manufacturers warranty
•Complete with cable to Amiga 500
•Citizen registered for Dealer plus service

•Swift 1200+ **£129**
(9 pin. 80 column,144 cps draft, 30 NLQ 4KDB Buffer)

•Swift 90 Colour **£168**
(9 pin. 80 column, 216 cps draft, 54 LQ 45db quiet mode

•Swift 200 **£186**
(24pin.80 column, 216 cps draft, 72 LQ. 43dB quiet mode

•Swift 240 Colour **£259**
(24pin.80 column, 240 cps draft, 80 LQ. 43dB quiet mode

•Swift Pro Jet **£299**
(80 column, 50 nozzle print, 360 cps draft, 120 LQ, HP emulation 8KB buffer, 3 fonts, vertual lazer quality

Chips and Spares

•WTS have sole distribution rights from Americas biggest Commodore chip distributor

• Workbench 2.04 Kit (includes manuals, disks & chip) **£78**
• Kickstart 20.4 **£24**
• Kickstart 1.3 **£26**
• Kickstart ROM Swapper (swap between Kickstart) **£18**
• Fatter Agnus 8372 **£49**
• Obese Agnus 8375 **£54**
• High Res Denise **£29**
• 1MB x 9 Simms (3 chip) **£29**
• 1MB x 4 Zips **£14**
• 8520 CIA **£13**

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NO DELIVERY CHARGES TO UK MAINLAND. MINIMUM ORDER AMOUNT £15.00.
Should you wish your order to be sent by courier service please add £5. This method includes Comprehensive insurance.

WARRANTY: One year return to base (excluding chips).
ONE YEAR EXTENDED WARRANTY: Available on all products (excluding chips) at 10% of purchase price when ordering.

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ADD-ONS & PERIPHERALS

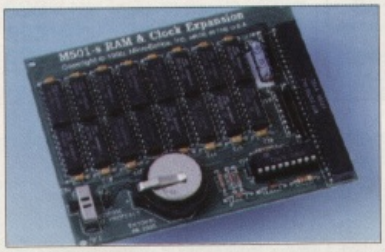
One of the things that makes the Amiga so powerful is the ease with which it can be upgraded. You can beef up even the humblest A500 until it's capable of giving the revered 486 PC a run for its money. Each Amiga has its own unique qualities, and requires its own add-ons. Broadly speaking add-ons fall into two categories: plug-in cards for big box machines such as the A1500 and A4000, and machine specific peripherals for the smaller machines. Most of the time, peripherals for the bigger machines are interchangeable between the A4000, A3000, A2000 and A1500, therefore we've reviewed stuff for them in one section, whilst looking at products for the other machines in another section. Modems and printers are compatible with all machines, and so they form the dividing line between the two sections. Read on...

RAM CARDS

Extra memory can greatly increase the range of things that you can do with your Amiga. Most machines are supplied with Chip RAM only, so buying a Fast RAM upgrade will not only increase the amount of data that you can store, it will even increase the speed at which that data is manipulated.

MB M501

£19.99 - INDI DIRECT - 0543 419999



The A501 plugs into the trapdoor slot of the A500. It contains 512k or one megabyte of Fast RAM and includes a battery backed clock which is useful if you own a hard drive. It also features an on/off switch so that it can be disabled for those rare games that don't work with Fast RAM.

A500 – Not A500+

70%

2 MB PCMCIA CARD

£119.99 - INDI DIRECT 0543 419999

A1200 and A600 owners can add two types of RAM to their machines: internal cards which plug into the expansion slots underneath the computer, or PCMCIA memory that plugs into the 'smart card' slot at the side.

Although smart cards are only 16-bit, and will thus slow an A1200 down, they are convenient and extremely easy to fit. They're also extremely portable, for what it's worth!

This card offers two megabytes of 16-bit RAM.

A600 and A1200 only.

60%

MEGACHIP 2

£159 - POWER COMPUTING - 0234 843388

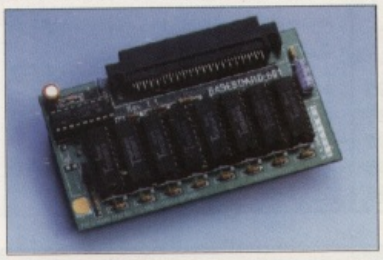
Chip RAM is essential for graphics and sound, and the more you have, the more you can do. The Megachip lets you upgrade the A500, 1500, 2000 or 3000 to a full two megs of Chip RAM.

It plugs into the Agnus slot of your computer, and although it will invalidate your warranty, it's very easy to fit and is unlikely to cause you any problems.

Once fitted, it will not interfere with any Fast RAM expansions that you may have.

A500/+, A1500, A2000 and A3000.

84%



A600 CARD

£49.99 - INDI DIRECT 0543 419999

This card plugs into the expansion port of the A600 and adds one meg of Chip RAM, bringing the machine's total up to two megs. It's small, it's easy to fit, it works. What else is there?

75%

PC1208

£99-£619 - POWER COMPUTING - 0234 843388

A follow up to their popular PC1204 RAM card for the A1200, Power's PC1208 is probably the first card expandable to a full eight megs which does not conflict with the PCMCIA slot.

It comes with a clock in a variety of configurations starting at £99 for a board with no RAM but a 68882 maths co processor running at 20MHz and ranging up to £619 for a fully populated eight meg board that includes a 68882 maths co pro running at a lightning 50MHz.

A1200 only.

91%

PC1204

£185.95-£339.95 - POWER COMPUTING - 0234 843388

The little brother to the PC1208, the 1204 is supplied with four megs of surface mounted RAM which means that it's likely to be far more reliable than boards that use SIMMS or other socketed chips.

The 1204 is supplied with a battery backed up clock and again it's available with a variety of maths co processors ranging upwards from a 20MHz 68881 to a 50MHz 68882.

The board is not expandable like the 1208, but it's still a very good solution for those who are certain that they won't need more than a total of six megs of RAM.

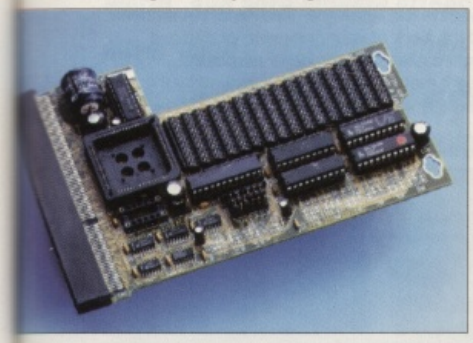
A1200 only.

88%

ALFA DATA RAM

£115-£465 - GOLDEN IMAGE - 081 365 1102

The Alfa Data RAM for the A1200 is unusual because it comes with at least one meg of RAM, and then you can still add another four or eight megs on top of that, making it the only card to give odd number RAM totals.



It's also unusual because it uses Zip chips instead of SIMMS, and these have recently been slightly easier to get hold of.

By now it will come as no surprise to learn that it also includes a battery powered clock and an optional maths FPU (co pro).

If the extra meg of RAM is important, this seems a good option, but compare the price of SIMMS and Zips if you don't want a fully populated unit just yet.

A1200 only.

89%

TURBOTECH

£179.99 - SIREN SOFTWARE - 061 724 7572

Yet another trapdoor slot A1200 RAM card, but the Turbotech doesn't come with room for an FPU, but it's a tad cheaper than some of the other cards. It comes with four megs and a clock, and that's all there is to it really!

A1200 only

80%

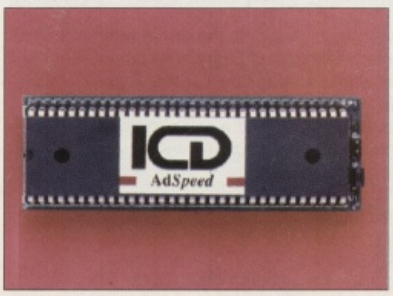
ACCELERATORS

Advanced though the Amiga may be, it's beginning to look very sluggish compared to other computer platforms where substantially faster processors are now the norm. Of course, the Amiga also has advanced architecture with chips such as the Blitter which help to compensate for its relatively slow CPU. But if you're still not satisfied, there's no reason why you can't increase the speed of your machine.

ICD ADSPEED

£119 - POWER COMPUTING - 0234 843388

The Adspeed is the least expensive of all the upgrades reviewed here, but then of course, it's also the least impressive. It works with any Amiga that uses a socketed 68000 chip and simply plugs into the socket replacing the existing chip.



Although it's still only a 68000 itself, the Adspeed does run at 14MHz, twice the clock speed of the standard 68000. Contrary to what you might expect, this does not produce a twofold increase in speed. In fact, at best, it gives you a 15-20% improvement.

Still, it's not particularly expensive and it's fairly easy to fit.

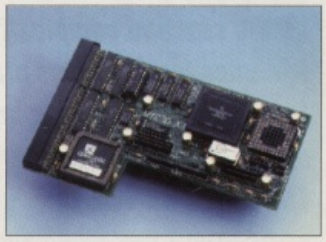
A500/+, 1500, 2000.

60%

MICROBOTICS M1230XA

£239.99-£711.19 - INDI - 0543 419999

The M1230 is one of the better A1200 boards in a market jostling with high quality kit. As with all A1200 peripherals, you can choose the specification, ranging from a 40MHz 68EC030 accelerator with no RAM or maths co pro for a very reasonable £239.99 and going up to a 50MHz full 68030 accelerator with a 68882 maths co pro also running at the same speed and a hefty eight megs of RAM.



In fact, it is possible to add up to 128 megs of RAM if you can find a single SIMM that large. In real terms the largest you'll be able to find is a 32 meg chip and that's likely to damage your wallet to the tune of well over £5000!

If you choose the 50MHz card, the processor includes a memory management unit which is necessary for running the virtual memory program Gigamem as well as programmer's tools such as Enforcer.

The M1230XA plugs into the trapdoor slot so your warrranty remains intact. ***A1200 only.***

86%

GVP A1230 TURBO

£249-£499 - SILICA SYSTEMS - 081 309 1111

The A1230 was the first A1200 accelerator to hit the streets, and because of that it now looks a little plain compared to the others which have enjoyed more development time.

It offers a 40MHz 68EC030 accelerator with one or four megs of RAM and an optional maths co pro. Of course, it also includes a clock.

Even without the FPU, it still accelerates the A1200 to approximately seven times its normal speed, and this is the slowest A1200 accelerator on offer!

Of course, being GVP it means that the board is well built, and it's worth phoning Silica to see what current price offers are available as an upgraded version to this board is imminent.

You can add up to 32 megs of RAM to the board via its two SIMMS slots. You need to use GVP's proprietory chips which in turn means that they're no good for anything else if you ever change computers. On the up side, the board does offer not one, but two SIMMS slots, so you can build up to 32 megs in two slightly more affordable 16 meg chips if you like.

A1200 only.

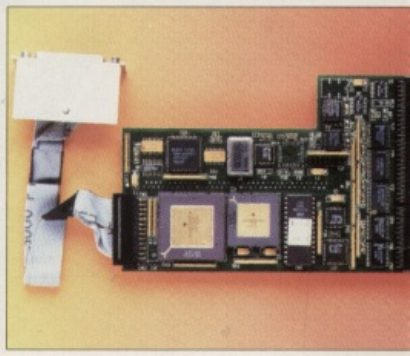
92%

CSA 12 GUAGE

£499-£999 - OMEGA PROJECTS - 0942 682203

For the real power user, the CSA 12 guage is the creme de la creme of A1200 accelerators, and in fact is likely to be the only peripheral you ever need! Well, not literally, but it certainly is a feature packed board.

For starters, it contains a full 68030 accelerator running at a spritely 50MHz. It also gives you an optional 68882 maths co pro running at the same speed. On top of that there's a SCSI interface that emerges from the back right of your Amiga (or underneath if you're scared of losing your warranty). This interface will automatically configure itself as a SCSI 1 or SCSI 2 device according to the peripheral attached to it. Furthermore, the unit also contains a clock and a socket which will accept an ethernet/Local Area Network chip so that the Amiga can be linked up to other computers including PCs.



With the option to add up to 128 megs of RAM, this board is completely unbeatable, although you may as well start applying for mortgage facilities now 'cause it doesn't come cheap.

Absolutely my best recommendation if you can possibly afford it.

A1200 (with a large wallet!)

95%

HARD DRIVES

As the size and complexity of programs increases, it becomes less and less practical to load software from floppy disk, especially with titles occupying more than half a dozen disks on a regular basis. A hard drive works like extra memory except its contents aren't lost when you turn the power off. Although they come in capacities as low as 20 megabytes, I would strongly recommend that you ignore anything smaller than 40 megs. If you can't afford one of that size, then wait till you can.

GVP HD8+

£199-31120.10 - SILICA SYSTEMS - 081 309 1111

There are lots of hard drives available for the A500, but few come close to the high standards set by GVP. The HD8+ was their first A500 drive, and it's still selling extremely well, especially since the prices were drastically reduced.

The drive plugs directly into the expansion slot at the side of your A500, so your warranty won't be affected. It comes pre-installed so it's simply a case of plugging in and off you go.

It offers extremely fast read and write speeds, and comes with the option to add up to eight megs of 16-bit RAM. It also includes a proprietory mini-slot into which which you can plug a 286 PC emulator costing as little as £150.

There's also a game switch with which you can turn the drive off so that it doesn't conflict with your games. The HD8+ is available in 42 and 105 megabyte capacities.

90%

A500/+ .

A530 TURBO

£399-£1670.10 - SILICA SYSTEMS - 081 309 1111

The A530 Turbo is simply the best drive that money can buy for the A500 and A500+. It includes the same superfast drive featured in the HD8+, and has the same plug in and go simplicity. However, what sets the A530 Turbo apart is the fact that it includes a 68EC030 accelerator running at 40MHz and it can even support a 68881/2 maths co processor. In other words, with this drive it's not just your data transfer that's fast, your A500 gets turbo charged to speeds nearly as fast as an A4000 '040.

The drive also has room on it for up to eight megs of 32-bit RAM and it's available in capacities ranging between 42 and 240 megabytes. Because it uses fast 32-bit memory chips, you can actually store your Amiga's operating system in RAM and it'll run even faster.

There's also the same mini-slot present on the HD8+. The game switch disables both the accelerator and the RAM which is a bit of a nuisance, but other than that, this drive is extremely hard to fault.

91%

A500/A500+

DATAFLYER XDS

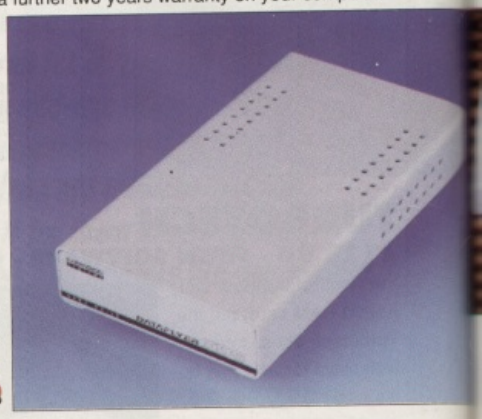
£224.99-£449.99 - TRILOGIC - 0274 691115

If you don't mind invalidating the warranty of your A600 or 1200, you can add a really cheap three-and-a-half inch drive.

Although the Dataflyer comes in a very nice external case, it still needs to be connected to your computer via the IDE interface. This results in a ribbon cable which can either trail out of the back of your computer, or can exit through the PCMCIA slot (making it useless for any other purpose).

As with the Overdrive, because it mounts the IDE drive externally the Dataflyer can use the larger capacity and lower priced three-and-a-half inch drives.

Trilogic can also offer you a further two years warranty on your computer for only £27.99.



The maximum data transfer rate is limited to the speed of the drive and the IDE interface, and this means that the Dataflyer does tend to be slower than the Overdrive, although in the vast majority of cases it won't matter.

Your choice is clear, do you want speed and ease of connection or do you want a cheap, well designed drive with a good capacity? The Dataflyer is offered in capacities between 120 and 420 megs.

94%

A600 and A1200.

OVERDRIVE

£189-£516 - SOFTWARE DEMON - 0736 331039

The A1200 and A600 both come with internal IDE interfaces so that you can immediately plug in any compatible two and a half inch drive and you're ready to go with no more messing about. The only trouble is, in order to plug a drive in, you'll have to open the machine, thus invalidating your warranty.

Overdrive is the neatest solution, because it simply plugs into the PCMCIA slot at the side of the machine. Not only does your warranty stay intact, but the drives are more or less portable.

Software Demon originally planned to distribute the drives without power supplies, but on Amigas that already use a lot of peripherals potential problems could develop meaning that you'd have to buy a power supply anyway. To avoid charging people extra they simply included a PSU with every drive.

The drives come pre-installed with a three and a half inch unit in capacities ranging between 40 and 426 megabytes. In operation they're extremely fast; in fact at least 50% faster than the GVP drives I love so much, and twice as fast as the standard Seagate IDE drive in my A1200.

They can be plugged into the computer and unplugged even when the power is switched on. A special portable A600 version is available which can be slipped into your pocket.

95%

A600 and A1200.

MODEMS

You can use your Amiga to talk to the rest of the world, and with modem prices plummeting there's never been a better time than the present.

US ROBOTICS SPORTSTER

£279.95 - FIRST COMPUTER CENTRE - 0532 319444

Despite looking more like a child's toy than a top end piece of professional equipment, the Sportster still offers a better power to price ratio than any other modem reviewed here.

It offers transmission rates of 14,400 baud with MNP5 and V42 error correction. If linked to a similarly equipped modem, transmission rates of up to 56,000bps are theoretically possible (although unlikely using a standard 68000 based Amiga).

Extremely impressive at such a reasonable price.

91%

US ROBOTICS COURIER HST DUAL STANDARD

£503.99 - FIRST COMPUTER CENTRE - 0532 319444

The ultimate modem, but at a price. Standard data transmission rates of 16,800bps make this the fastest modem reviewed. Rather cheaply built considering its whacking price tag but one of its great advantages is the fact that it can be upgraded to the new VFC protocol when it's released. This will push up transmission speeds to a hefty 28,800 bps.

With V42 BIS, MNP5 and US Robotics' own HST standard, this is a device designed to link up with everything in the world to offer the fastest possible communications.

The top banana in terms of RAW data pumping power, but with an executive price to match.

90%

SUPRA V32BIS FAX MODEM

£249.99 - FIRST COMPUTER CENTRE - 0532 319444

The best of the Fax modems at a reasonable price. The Supra v32bis chugs data at a healthy 14,400bps and has the added advantage of being able to send faxes as well. Again it supports MNP5 and v42 so it will connect comfortably with all modern communications networks.

It includes a nice matrix LED on the front to tell you what's happening, rather than relying on the uninformative single lights used by all the other modems.

It's also very compact, and with a brushed aluminium case it seems more robust and better designed than US Robotics' equipment. Unfortunately that illusion is shattered by the fact that this modem is not even BABT approved and so cannot legally be used on the British phone network. Of course, it's not as if roving bands of telecom SWAT teams are likely to burst into your home to check, but...

If you don't mind taking a walk on the wild side, this offers perhaps the best all-round value of any modem.

90%

SUPRAMODEM 2400

£74.99 - FIRST COMPUTER CENTRE - 0532 319444

If your wallet is not very large and you can only look on at comms users in envy perhaps this cut-price half-pint can bring a gleam of hope to your eye!

It comes supplied with all cables and is robust in construction, and very easy to use thanks to the comms software that First Computer Centre thoughtfully bundle with it.

Its speed of 2400 bps is extremely slow for anything except text transmission or real-time conversation. For example, a one megabyte program would take a little over 58 minutes to download with this system, so if you expect to do a lot of up or downloading, then you really should save up for a faster modem. It'll pay for itself in phone bills in no time at all.

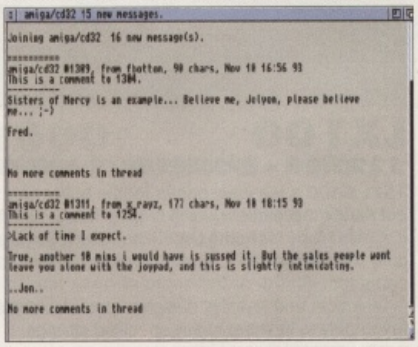
Nevertheless, for less than £80, you can sample the joys of the comms world – who knows you might even become a hacker!

70%

NICOLA

£29.99 - TRICKY 0273 885547

Of course it's all fine and dandy having all these wonderful modems, but unless you have the software to use them, they're no good to you. Many people use *NComm*, but if you're a CIX user, there's an infinitely better solution.



```
amiga/cd32 15 new messages.

Joining amiga/cd32  16 new message(s).

----------
amiga/cd32 #1309, from Shotton, 90 chars, Nov 10 16:56 93
This is a comment to 1304.
----------
Sisters of Mercy is an example... Believe me, Jolyon, please believe
me... ;-)

Fred.


No more comments in thread

----------
amiga/cd32 #1311, from x_payz, 171 chars, Nov 10 18:15 93
This is a comment to 1254.
----------
>Lack of time I expect.

True, another 10 mins i would have is sussed it. But the sales people wont
leave you alone with the joypad, and this is slightly intimidating.

..Jon..

No more comments in thread
```

Nicola simulates the CIX commands, but without wasting your phone bill.

Nicola is an off-line reader, which means that it automatically logs onto CIX for you, performs all your business, then logs off and lets you review the day's updates without having to pay phone time. Average log on time with Nicola with a download of say 100k on a 14,400 modem is under three minutes. The whole point is, it cuts your phone bills to a tiny fraction of their previous levels.

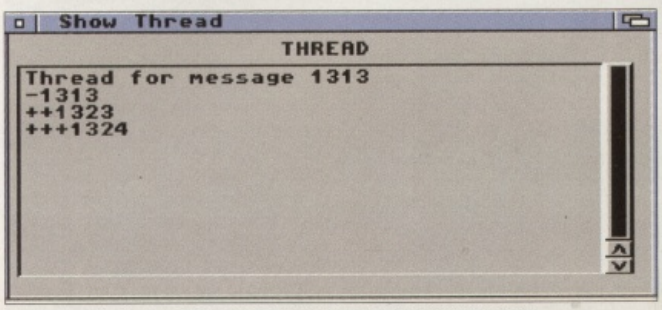
When Nicola is running, it works very like CIX, in that 99% of the CIX commands perform the same function within Nicola as they do in CIX, the difference being the data base upon which the commands are acting is in your computer, rather than on a main frame in Wales.

The program also offers many features not supported by CIX, such as the option to filter out boring people, or highlight interesting ones. You can also print individual messages, or view every message number in a thread.

Nicola is a dream to use and comes with a friendly Workbench 2.0-style interface. It's also practical because it slashes your CIX charges and your phone bills.

Requires an error correcting modem and one meg of RAM.

92%



Nicola also offers features not provided by CIX, such as this thread trace option.

PRINTERS

There's little point owning most business software without a way of outputting your results, and that means buying a printer. There are models to suit all pockets and all requirements. Rather than listing every printer in the world, we've simply summarised some of the best.

LX100

£222.00 - EPSON UK - 0442 61144

The LX-100 is the ideal printer for the buyer on a budget. It uses a nine pin dot matrix mechanism which is quite noisy, but at 200 characters per second it's quite nippy for home use. It includes a 50 page sheet feeder to automatically feed paper into its mechanism, and it can handle tractor feed (sprocket) paper too.

A robust and stylishly designed printer which still compares favourably to its more highly specified siblings.

93%

OL400E

£499 - OKI SYSTEMS - 0753 819819

The OL400E offers laser quality without the expense or the space. In actual fact it's an LED printer which means that whilst it gives the same resolution and results as a laser printer, it doesn't produce the same ozone depleting gases. It occupies about the same desk area as a monitor, and is remarkably quiet in operation.

A print speed of four pages a minute makes it delightfully nippy for home use, although it's worth pointing out that that speed only applies to second and subsequent copies of a page; the first one is likely to take considerably longer.

95%

LC100C

219 - STAR - 0494 471111

The LC100 is one of the cheapest colour dot matrix printers, due to its nine pin head which doesn't give a very high resolution. Still, it's likely to be quite adequate for home use, and is designed for economy, with ribbons costing a give away six pounds each compared to the £15 that a Citizen Swift 240 ribbon would cost.

It features very good paper handling which means it's easy to use, and all in all the LC100 seems an ideal choice for beginners. A 150CPS print speed isn't going to set the world on fire, but it's tolerable.

76%

SWIFT 240C

£359 - CITIZEN - 0753 584111

The Swift is a 24-pin colour printer which, despite using a dot matrix mechanism, is quieter than most.

It uses a four colour ribbon to create a full spectrum of shades on paper, but when printing graphics, like all colour dot matrix printers, it's quite slow. As for text, it chugs along at 215CPS in draft mode, by no means exceptional given its price tag.

Its paper handling is quite good, and because it comes with specific instructions for Amiga owners, it's easier to set up than most.

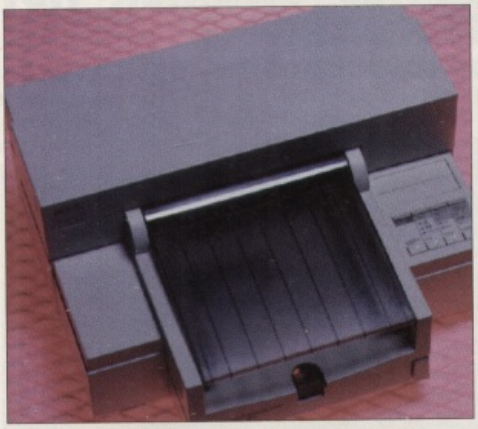
A reasonable option if you can't afford one of the colour bubble jets.

86%

DESKJET 550C

£539 - HEWLETT PACKARD - 0344 360000

The 550C is the upgrade to Hewlett Packard's ever popular Deskjet 500C. It's a bubble jet capable of delivering vibrant 24-bit colour. In order to produce such results, you'll need a dedicated driver as the Amiga Workbench drivers can't manage a fraction of the palette. Fortunately such drivers are available from a variety of commercial and public domain sources.



In monochrome it offers a resolution of 300DPI, but in colour this figure is significantly reduced.

The 550C is a smashing printer, producing vibrant and more or less solid colour. The only real problem is the high cost of running it if you do a lot of colour work (£27+ for ink cartridges).

88%

BJC600

£599 - CANON - 081 773 3173

Designed as a rival for the Deskjet 550C, the BJC600 is the latest colour bubble jet to hit the market, and to be honest, it's very impressive, offering some of the most solid and convincing colour mixing yet seen.

The only thing is, it suffers the same problem as the HP 550C in that it requires a dedicated driver to get the best from it. In this case Canon themselves have taken the initiative and commissioned such a driver.

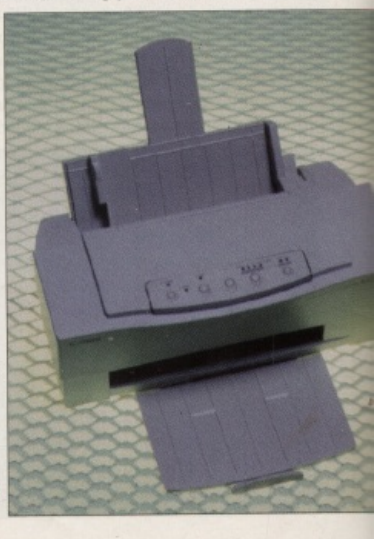
The ink used by this printer has been specially formulated to dry quickly, and this reduces the problem of colour bleed, and consequently increases the apparent resolution.

Strangely enough, however, when it comes to transparency printing the Canon is less impressive, and despite its quick drying ink, they still need to be handled with excessive care.

Speaking of resolution, the BJC600 manages 360DPI in monochrome and 45-360DPI in 24-bit colour.

It offers a print speed of 240CPS, and is certainly a very nice machine for serious home use.

89%



RAM BOARDS

Most Ram expansion boards available for the Amiga 1500/2000 are so similar in features and design that there's little to choose between them: 16-bit RAM cards will work in the A3000/A4000, but the RAM will run much slower than 32-bit RAM (motherboard Fast RAM). This is because these machines feature 32-bit architecture so that data can be moved around in chunks 32-bits in size. Obviously, by adding a 16-bit RAM card, you halve the rate at which data can be moved to and from them, causing bottle necks.

A2058

£N/A - COMMODORE - 0628 770088

The 16-bit RAM card from Commodore offers 2Mb (expandable to 8Mb) of Fast RAM for the A1500/2000. The card uses inexpensive 1Mbx1 DRAMS, although these are a bit fiddly to install. Unfortunately the card only supports 2Mb, 4Mb or 8Mb of RAM, so Bridgeboard owners will only be able to run 4Mb of RAM on the card.

Compatible with A1500/A2000/A3000/A3000T/A4000 .

55%

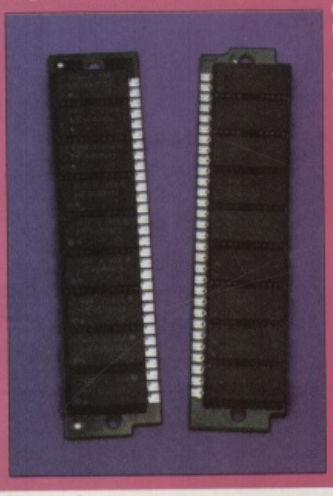
DIFFERENT TYPES OF RAM

Chip RAM – Sometimes called graphic memory. The area of RAM accessible to the Amiga's custom chip set. This memory is used for graphic and sound data. If such data is not held in chip RAM, the custom chips cannot access it, therefore it will need to be copied from Fast RAM to be useable. Although most Amigas only come with one meg of chip RAM, the AGA machines come with two megs as standard.

Because Chip RAM is so valuable, you can run a Workbench program called FastMemFirst which forces any subsequent programs that you load, to load into fast RAM unless they specifically need Chip memory.

DRAM – Dynamic RAM. These are the most common type of Amiga RAM chips, and are used on almost all A500 and 600 expansions. They come in the form of chips which are soldered onto your memory expansion. They come in individual sizes ranging between 32K and 512K, although they are rarely provided in this way. It's common to see four or even 16 DRAMs soldered onto an Amiga RAM upgrade board.

Fast RAM – General memory used by programs and data. On the AGA machines the only limit to the amount of Fast RAM you can add is the size of your wallet and the size of the available SIMMs. Fast RAM can only be accessed by the Amiga's CPU, and this means that data can be transferred to and from it far quicker than the equivalent data stored in Chip RAM.



SIMMs – Single Inline Memory Modules. A special type of RAM that has become popular because of its ease of use. Anything from one to 32 megabytes of RAM are stored on a thin circuit board half the height of a credit card. The card can then be plugged into any recepticle designed for it. The largest capacity board generates so much heat that it even comes with its own micro fan!

Zip – Stands for Zig Zag Inline Package. Another common type of RAM, they are essentially high capacity DRAMS. However, Zips are easier to get hold of than SIMMs since the RAM shortages earlier this year, and are likely to be cheaper.

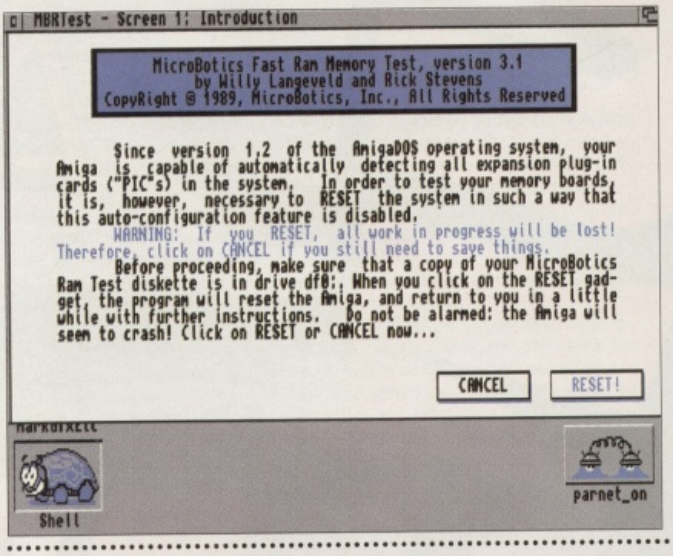
MICROBOTICS 8-UP

£N/A - INDI DIRECT - 0543 419999

This card is similar to the Commodore A2058, except it can support the 6Mb configuration the A2058 lacks. It uses the same 1Mbx1 DRAMS that the A2058 takes.

Compatible with A1500/A2000/A3000/A3000T/A4000

65%


MBRTest - Screen 1: Introduction
MicroBotics Fast Ram Memory Test, version 3.1
by Willy Langeveld and Rick Stevens
CopyRight © 1989, MicroBotics, Inc., All Rights Reserved
Since version 1.2 of the AmigaDOS operating system, your Amiga is capable of automatically detecting all expansion plug-in cards ("PIC"s) in the system. In order to test your memory boards, it is, however, necessary to RESET the system in such a way that this auto-configuration feature is disabled.
WARNING: If you RESET, all work in progress will be lost! Therefore, click on CANCEL if you still need to save things.
Before proceeding, make sure that a copy of your MicroBotics Ram Test diskette is in drive df0:. When you click on the RESET gadget, the program will reset the Amiga, and return to you in a little while with further instructions. Do not be alarmed: the Amiga will seem to crash! Click on RESET or CANCEL now...
CANCEL
RESET!
Shell
parnet_on

PRORAM 3000

$449.95 - PROGRESSIVE PERIPHERALS - 0101 303 238 5555

This Zorro III RAM card (for Amiga 3000 and Amiga 4000) allows up to 64Mb of 32-bit Fast RAM to be added to the Amiga to extend past the normal 16Mb Fast RAM limit of these machines. Standard 1Mbx8/9 or 4Mbx8/9 SIMMS can be used, but need to be added in groups of four (4Mb or 16Mb at a time).

82%

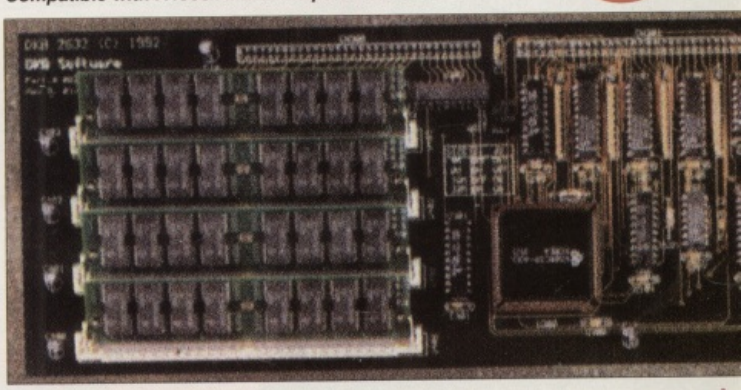
A2632

$549.95 - DKB SOFTWARE - 0101 313 960 8750

This 32-bit RAM expansion card is designed for A1500/2000 owners who have the Commodore A2630 accelerator. The A2630 can only be expanded to 4Mb of 32-bit RAM, not enough for many RAM hungry Amiga programs, so DKB released this board which plugs onto the back of the A2630 card to give space for up to 112Mb of 32-bit RAM to be fitted. The card comes with 4Mb of 32-bit RAM as standard. The card accepts standard 32-bit SIMM modules, and can mix different size modules for maximum flexibility. Due to the 32-bit RAM being outside the standard A2000 memory map, once the board is fitted then true DMA hard disk controllers (A2091, Microbotics Hardframe, etc.) cannot be used reliably.

Compatible with A1500/A2000. Requires A2630 accelerator .

81%



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ACCELERATORS

The Amiga 1500 and 2000 are slow machines. They use a 68000 processor running at 7MHz, which is slower than a Sega Megadrive. Modern software really needs the speed that only an accelerator board can provide. Even the faster Amiga 3000 and 4000 are sometimes too slow for certain tasks, and there are boards available to speed these up too.

A2630

£N/A - SILICA SYSTEMS - 081 309 1111

Commodore eventually replaced the A2620 card in production with the A2630 card. This card runs at 25MHz using the 68030 processor, and is fitted with a 25MHz 68882 maths co-processor as well. Like the A2620 it fits into the 86-pin CPU expansion socket.

Two versions of the card are sold, with 2Mb of RAM and 4Mb. Like the A2620 the extra 2Mb has to be soldered on if you buy the more amnesic version.

The 68030 processor on this board is the full 68000 with Memory Management Unit (MMU), so GigaMem is able to run on this board without problems.

If you want to expand the board once you have bought it there are two options. Firstly, there is the DKB 2632 RAM card, which gives up to 112Mb of 32-bit Fast

A2620

£299 - SILICA SYSTEMS - 081 309 1111

The original price for this 68020 accelerator from Commodore was over £1700 when it was first launched, quite high for a product that made an Amiga 2000 run at less than the speed of an A1200 fited with Fast RAM, however the price for the card now (which also includes 2Mb of 32-bit RAM) is far more realistic.

The Amiga 1500 and 2000 are slow machines. They use a 68000 processor running at 7MHz, which is slower than a Sega Megadrive. Modern software really needs the speed that only an accelerator board can provide.

The 68020 card from Commodore comes with a 68020 processor running at 14MHz, a 14MHz 68881 maths co-processor, and a 68851 Memory Management Unit (to run programs like GigaMem). It has an excellent build quality (as it was designed as a very expensive high-end card), and the card does not use the cut down cost-reduced version of the 68020 processor found in the A1200.

The card plugs straight into the 86-pin CPU extension socket in the Amiga 1500/2000. Owners of the original German A2000 model will have to remove the 1Mb RAM card from this socket to fit the accelerator and their 68000 CPU.

2Mb of 32-bit RAM is provided, and it can be expanded to 4Mb using 16 256x4 ZIP chips, but these have to be soldered into the board which isn't recommended for the inexperienced. Your dealer may be able to provide the card fitted with 4Mb instead of 2Mb if you ask nicely.

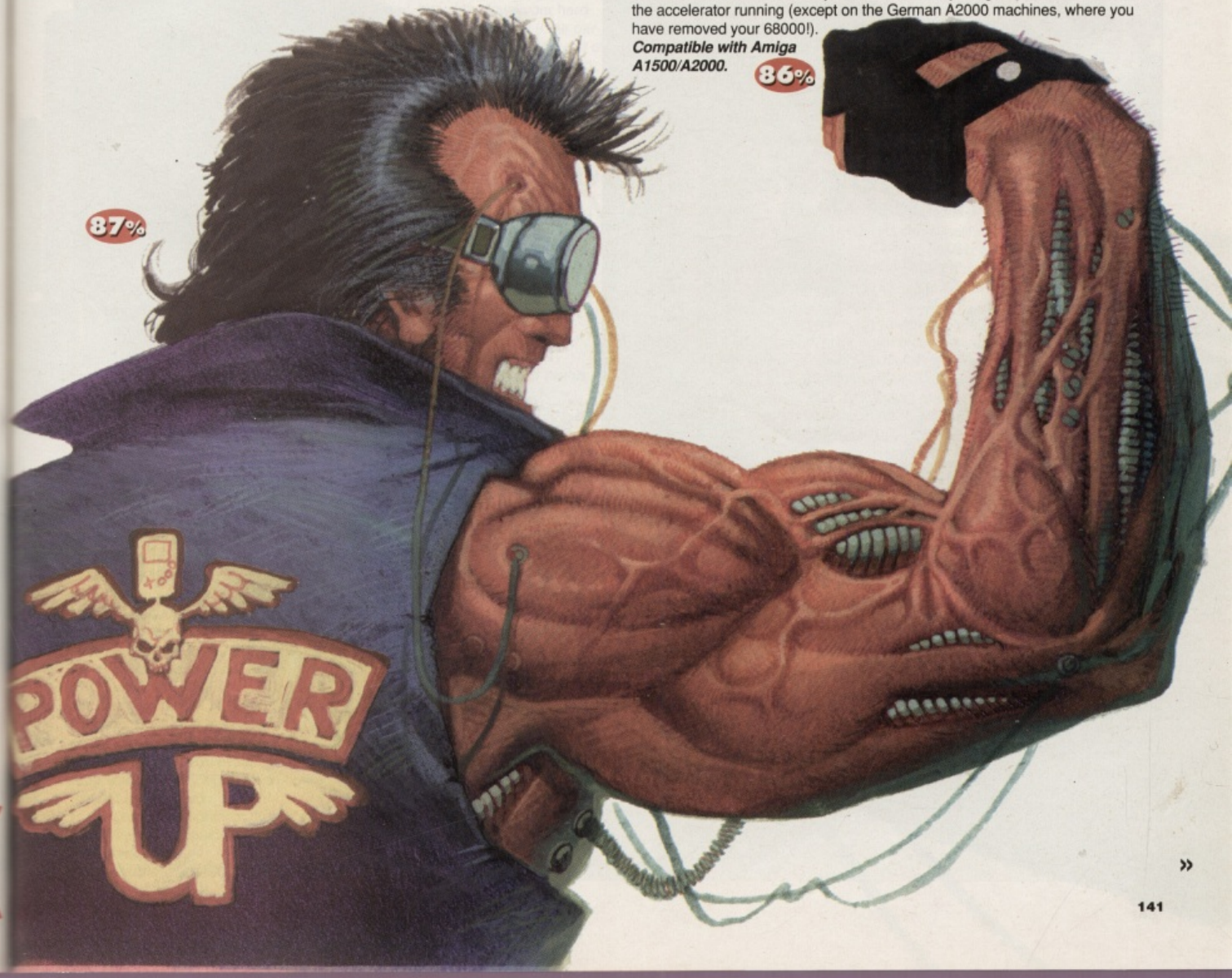
The card increases your machine's overall speed so that standard applications run between three and six times faster than normal.

When you have used an A2000 with the A2620 card in, you won't want to use it again in normal 68000 mode, but just in case you do you can switch the card off by holding down the right mouse button on reset, which brings up a menu showing 68000 (standard Amiga) and 68020 (accelerated). You can use this to turn off the card when you want to use any old games that don't work with the accelerator running (except on the German A2000 machines, where you have removed your 68000!).

Compatible with Amiga A1500/A2000.

86%

87%



GVP G-FORCE 25MHZ 030

£499 - SILICA SYSTEMS - 081 309 1111

This GVP accelerator for the Amiga 1500/2000 has sold well in recent years. Not only does it provide a 25MHz 68030 accelerator, but it also gives up to 13Mb of 32-bit Fast RAM, and a built-in high quality SCSI interface too.

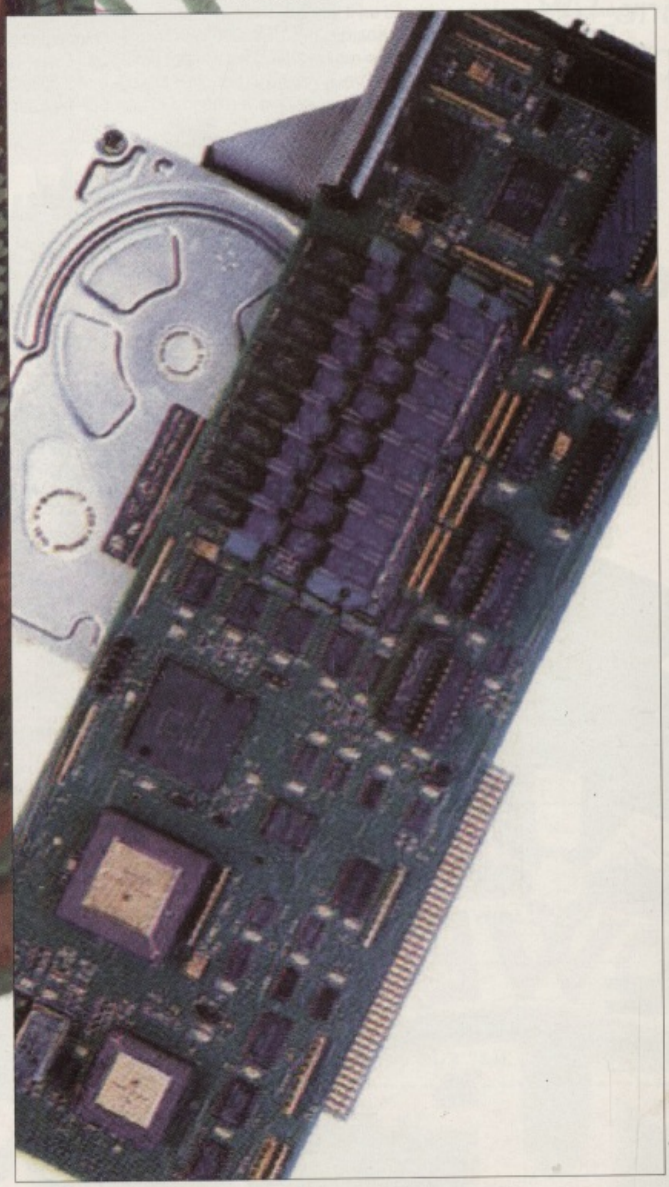
The processor is the EC version of the 25MHz 68030 (so no Memory Management Unit is fitted), and it is fitted with a 25MHz 68882 maths co-processor as standard. 1Mb of 32-bit Fast RAM is supplied, but you really need at least an extra 1Mb of 32-bit RAM to use the board sensibly.

The SCSI is based on the GVP HC8 (now GVP 4008 reviewed earlier) and uses the same software. It is fully RDB compatible and supports DMA transfers to its on-board memory. If you already have a SCSI controller in your Amiga, it is a good idea to transfer the drives to this new controller to maximise speed (if your other controller is also RDB compatible then you will not need to reformat them).

External SCSI is handled through a 25-way connector as standard, but to mount internal drives on the card requires a special mounting frame which is an additional cost.

The only real problem with this card is that is doesn't use normal SIMMS. The card uses GVP's proprietary 1Mb and 4Mb SIMMS which are more expensive and more difficult to get hold of than normal SIMMS. ***Compatible with: A1500/A2000.***

85%



MICROBOTICS VXL-30

£274.99 - INDI DIRECT - 0543 419999

This is another accelerator that requires you to remove your 68000 chip and totally dismantle your Amiga. The board is sold in two pieces, the VXL-30 accelerator and the VXL-RAM32 RAM expansion.

Despite what you may be told you need both pieces for the accelerator to work, without the 32-bit ram board the accelerator runs so slowly that it's actually a decelerator, running at just under 0.9 times the speed of a standard Amiga!

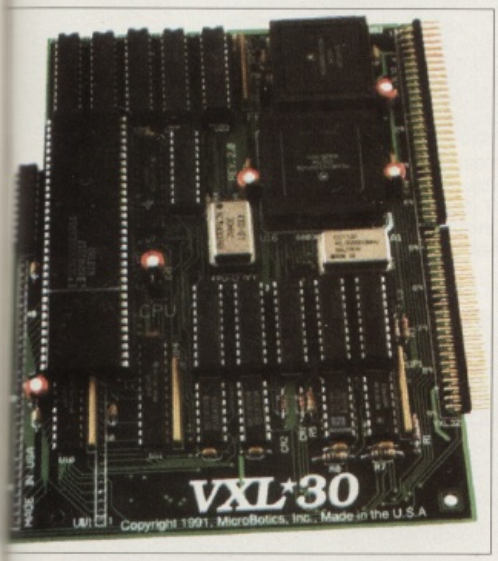
Unfortunately, this is where problems begin. The combined board with RAM and accelerator is rather heavy, and because it's lopsided (it's connected to the board through the 68000 socket which is on the left of the board) after a while when it gets warm it tends to pop out of the socket, always causing a crash, invariably just before you are about to save something important.

The board doesn't even seem terribly reliable when it is connected properly (even after using a glue gun on it to make sure it will never move again!). Strange crashes happen regularly (especially, but not only, when used in conjunction with GVP hard disk controllers).

The accelerator comes as standard with the EC version of the 68030 chip, and the RAM card comes either in 2Mb or 8Mb versions (you can upgrade the 2Mb to 8Mb, but you have to remove and discard the 2Mb chips first).

The speed increase from the combined accelerator/RAM board is similar to other 25MHz 030 accelerators, around an 8 to 10 times speed increase over the standard machine, but with this particular board it is hard to say whether it was worth the bother.

The only nice feature about the VXL-30 is the ability to map the 32-bit RAM into standard 24-bit address space. What does that mean? If you have a DMA controller (e.g. A590/A2091/Microbotics Hardframe) you will no doubt have heard that most accelerators slow down your hard disk dramatically (One particular company went out of business before releasing the 'patch' they claim fixed this particular problem – two years after announcing it would be available to their users). The only other accelerators to do this are the Commodore ones.



With the RAM mapped into 24-bit space the DMA controllers work perfectly happily, and I can confirm that the VXL-30 and the A590 are perfectly happy working together.

Compatible with: A500/A1500/A2000 - would have been much lower if not for 24-bit memory option.

61%

MERCURY 040/3000

$2599 - PROGRESSIVE PERIPHERALS - 0101 303 238 5555

This accelerator for the Amiga 3000 and Amiga 3000 Tower (but not A4000/030) provides a 28MHz 68040 chip, upgradeable to 33MHz or 40MHz. It supports RAM bursting (very fast RAM access) and contains up to 32Mb of on-board Fast RAM, which as it is directly connected to the 68040 chip runs extremely fast.

Like all 68040 accelerators fitted to the Amiga 3000 it requires Kickstart 2.04 in ROM (Many Amiga 3000s have ROMS which load Kickstart from hard disk. If it says 'Loading Kickstart 2.x..' then you have the early ROMS that need upgrading.

The ROM is available from Progressive Peripherals with the board.

82%

Compatible with A3000/A3000T.

GVP G-FORCE 40MHZ 030

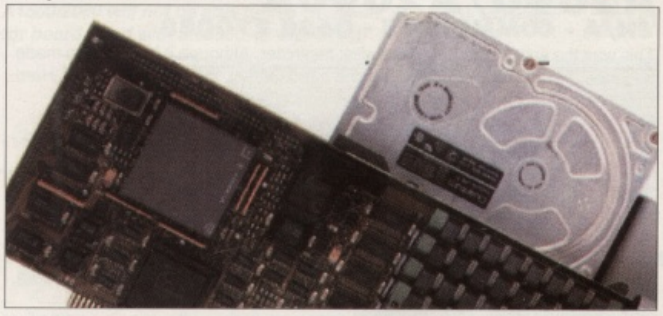
£899 - SILICA SYSTEMS - 081 309 1111

This faster version of the G-Force board comes with the 40MHz versions of the 68030 (still without an MMU though) and 68882 maths co processor. It also comes with 4Mb of 32-bit RAM as standard and is expandable up to 16Mb totally.

Otherwise it is exactly the same as the 25MHz model, and still uses those nasty GVP SIMMS.

85%

Compatible with A1500/A2000.



CSA DERRINGER

£349-£799 - OMEGA PROJECTS - 0942 682203

This accelerator for the A500/A1500/A2000 is available in various configurations, from 25MHz 68EC030 with no FPU to 50MHz 68030 with 50MHz 68882 FPU. A single SIMM socket allows up to 8Mb of Fast 32-bit RAM to be fitted to the board directly. It can also re-map Kickstart into 32-bit RAM, which speeds up the operating system tremendously.

To fit this board requires the removal of the 68000 chip from the motherboard, which although not difficult is not as simple as fitting an accelerator board into the CPU extension socket. It also requires the complete dismantling of the Amiga 2000, rather than just taking off the lid as with fitting other cards.

Apart from this there is little to complain about. The build quality is excellent and the card works wonderfully.

84%

Compatible with: A500/1500/A2000.

A3640 ACCELERATOR

$1998 - COMMODORE - 0628 770088

Available in the US, but not yet launched in the UK, this accelerator for the Amiga 4000/030 fits into the CPU card socket (replacing the 68EC030 processor card) upgrading it to a 25Mhz 68040 processor. This is identical to the processor card fitted to the 4000/040, so fitting this to the 4000/030 gives you a genuine 4000/040, the only difference being how much RAM is fitted to your machine and the little sticker on the front (and a replacement 4000/040 sticker is provided!)

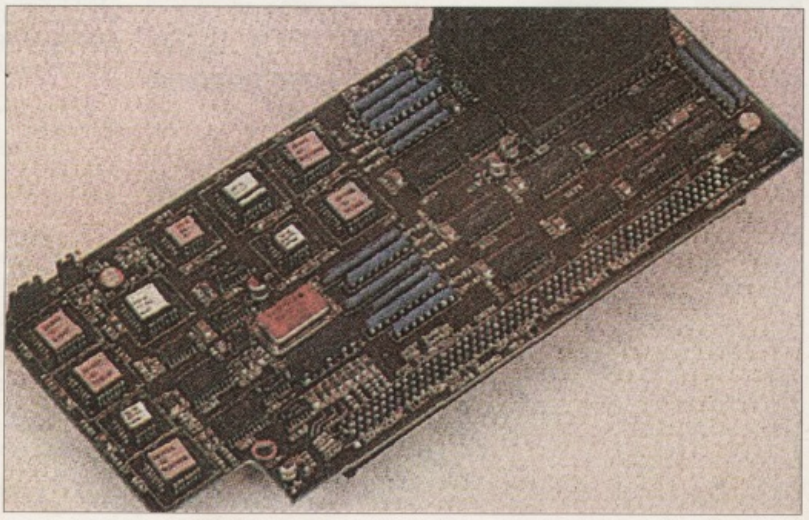
It will also work in the Amiga 3000 Tower (as long as Kickstart 2.04 ROMS are fitted, not the early ROMS that load Kickstart from hard drive), but not in an Amiga 3000 (there isn't enough room for the card to fit in!).

Speed increase is between three and four times the speed of the original 68030 system, and is more noticeable when upgrading the 4000/030 which doesn't have a maths co-processor as standard.

Expect the list price in the UK to be much lower than this US dollar price would suggest, nearer £800 would be a good estimate.

86%

Compatible with A3000T/A4000-030.



HARD DISK CONTROLLERS

A hard disk will increase your productivity drastically, and it's one of the best reasons for buying a 'big box' Amiga (A1500/2000/3000/4000).

Described below are some popular hard disk controllers for the Amiga. Most are available either bare (add your own hard drive) or with various capacity hard drive mechanisms. Prices quoted are for bare cards without drives (except where stated).

A2090/A2090A

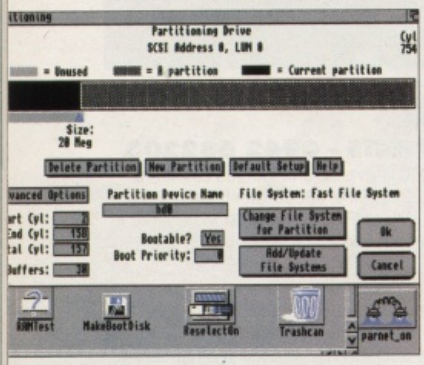
£N/A - COMMODORE - 0628 770088

This was the first Amiga 2000 hard disk controller. Although it hasn't been made for years they still turn up on the second hand market, sometimes labelled 'Hard Disk controller for A2500'. They are very primitive (using obsolete MFM hard disks), slow, and the A2090 model will not even auto-boot. Avoid this board! ***Compatible with A1500/A2000.***

11%

A2091

£129 - COMMODORE - 0628 770088

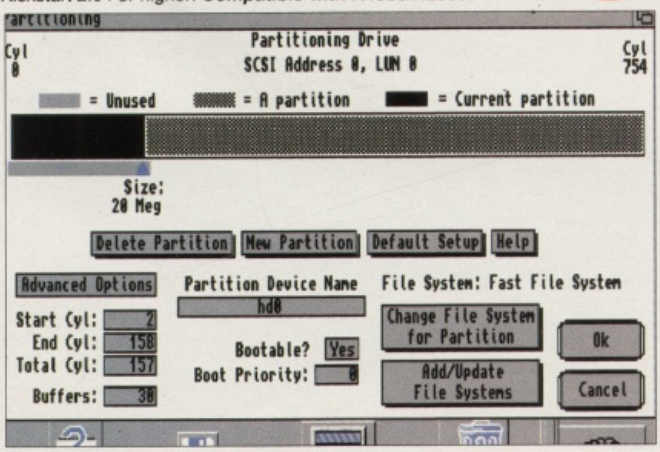


This board was designed to replace the A2090/2090A cards from Commodore, and was a much better effort. Essentially the same excellent SCSI controller found in the A590 hard drive (but without the horribly slow 20Mb hard drive!). It's one of the few full DMA transfer controllers for the Amiga 1500/2000 and with a fast hard drive can provide excellent results. It also introduced the RDB (Rigid Disk Block) standard that all good controller cards now follow.

The card has space for fitting a 3.5" hard drive, and a 25-way external SCSI connector for external devices (such as CD-ROMs, Tape Streamers, or more hard drives). It also doubles as a Fast RAM expansion card, having space for 512k, 1Mb or 2Mb of Fast RAM (using 256x4 DRAMs, the same as the A590)

The software supplied is the standard HDToolBox from Commodore, a simple and powerful gadget-driven installation package, although the disk still assumes Kickstart 1.3 and needs a little knowledge to use with Kickstart 2.04 or higher. ***Compatible with A1500/A2000.***

89%



GVP A4008 SERIES II SCSI

£129 - SILICA SYSTEMS - 081 309 1111

This new board from GVP isn't really new at all. It's the well known and well loved GVP HC8+ card with a slightly updated ROM and a new name.

That itself should not detract from the quality of the card. It is fully Rigid Disk Block compatible allowing drives to be interchanged with Commodore and other controllers, and more importantly, standard software (like hard disk repair tools) will work correctly.

The controller now supports the full SCSI-2 command set (allowing it to communicate more efficiently with SCSI-2 drives), but does not support the double speed transfers that SCSI-2 FAST allows.

Although the card is essentially non-DMA (it uses the CPU for transfers), it uses DMA to an on-board RAM buffer, meaning the CPU is free from the majority of the drive workload, but the card will still work in 32-bit machines (unlike full DMA cards like the A2091).

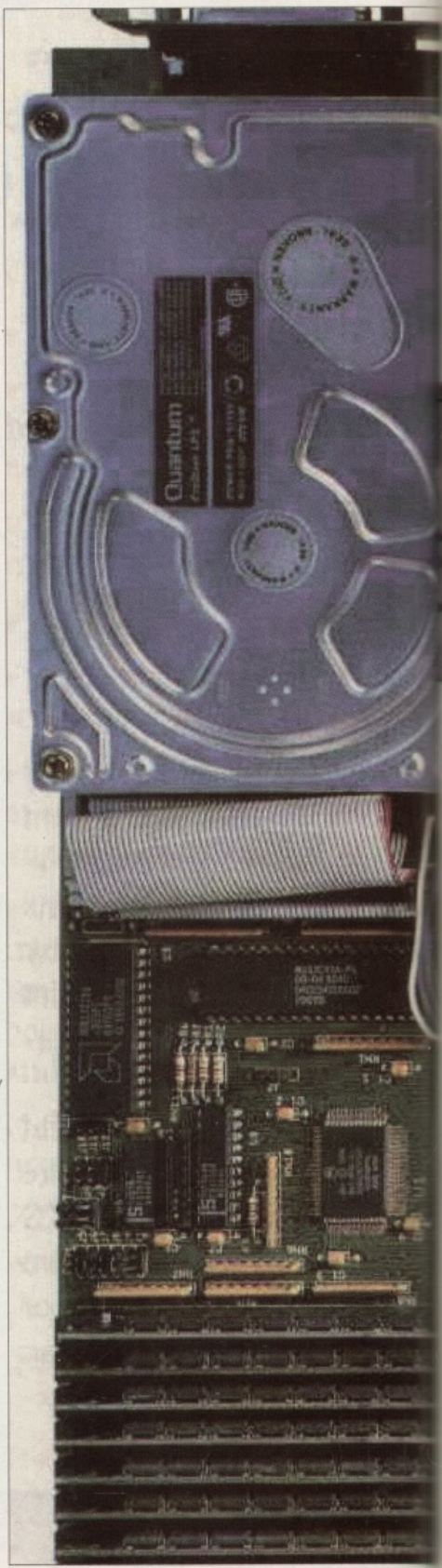
The card is packed with features. A 3.5" drive will mount on the card. Like other cards, in a 3000 or 4000 this can obstruct the Video slot or another Zorro slot.

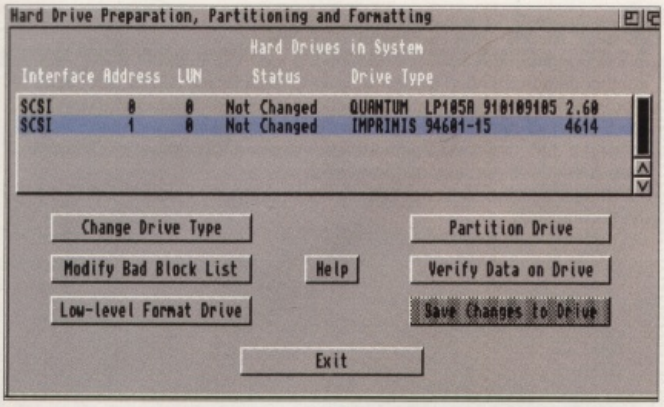
Up to 8Mb of 16-bit Fast RAM can be added (1Mb SIMMS as 2, 4, 6 or 8Mb) directly to the board. Connecting external devices is easy, a standard 25-way SCSI connector is provided (identical to A590/A2091/A3000).

The software supplied is very good.

Compatible with A1500/A2000/A3000/A3000T/A4000.

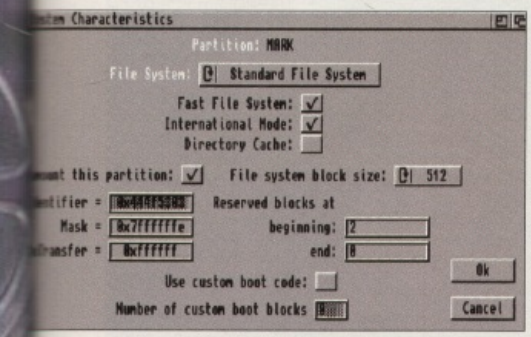
90%




Hard Drive Preparation, Partitioning and Formatting
Hard Drives in System
Interface Address LUN Status Drive Type
SCSI 0 0 Not Changed QUANTUM LP105A 910109105 2.60
SCSI 1 0 Not Changed IMPRIMIS 94601-15 4614
Change Drive Type
Partition Drive
Modify Bad Block List
Help
Verify Data on Drive
Low-level Format Drive
Save Changes to Drive
Exit

A4091

£225 - COMMODORE - 0628 770088

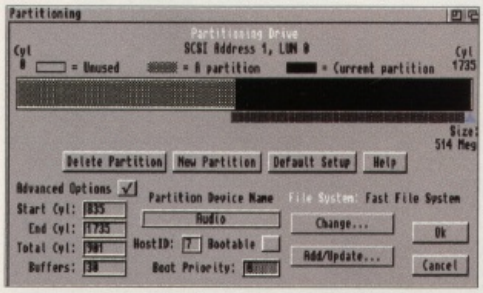


A4000 owners who were disappointed that their machines did not come fitted with a SCSI hard disk interface were delighted when Commodore launched the A4091 SCSI-2 FAST interface, which supports running new SCSI-2 hard drives at full speed, which can be up to double the speed of the same drive running on an ordinary SCSI controller like the A2091.

The card is a Zorro III card, meaning it will only work in the Amiga 3000/3000T/4000 computers.

A 3.5" hard drive can be fitted to the card, although this will cover up the video slot or a Zorro slot in the 3000 and 4000. The drive is supplied with a long internal SCSI cable with enough connectors that you should never need another internal SCSI cable however many drives you cram into your machine.

It also comes with an active terminator. This is a small board that plugs into the end of the SCSI chain to allow SCSI-2 FAST transfers to work reliably.



All the dip switches are accessible from the outside of the machine, and external drives are connected via a miniature 50-pin SCSI-2 connector on the back of the card. This is totally different to the 25-pin connector found on almost every other SCSI card, but is necessary for SCSI-2 to function correctly. No external SCSI cables are provided, which is a pity as they are far more expensive than normal external SCSI cables.

There are two problems with the A4091. Firstly, it does not work with the Revision 9 or earlier Super-Buster chip. Bugs in this chip meant most Zorro III cards are either unreliable or don't work at all. All Amiga 4000/040 and 4000/030 produced before June 1993 have the older version of the chip, and Wang have to be called to upgrade earlier machines to the new chip (which is not available separately for you to upgrade yourself).

A3000/3000T owners have more problems. All A3000/3000T machines have early Buster chips, and as almost all of these machines are now long out of warranty and no longer covered by maintenance agreements it is almost impossible to get your machine upgraded to run the card.

The other problem is more fundamental. Commodore have stopped production of the card and it is now rather hard to find, although some dealers will still have stock. The rights to the card have been bought by US Amiga specialist DKB, who will be re-launching the card as a DKB product, probably by the time you read this.

Commodore A4091 cards also have a few bugs in the ROM. There is now a newer version of the A4091 ROM available, phone your dealer for upgrade information.

Compatible with A4000 (with Revision 11 or higher Super Buster chip) **82%**

BSC OKTAGON 2008

£129 - GASTEINER - 081 365 1151

New in from Germany is the latest version of the Oktagon SCSI controller. While it was popular in Germany the Oktagon SCSI card never took off in the UK, mainly due to the success of GVP with their A2000 SCSI card.

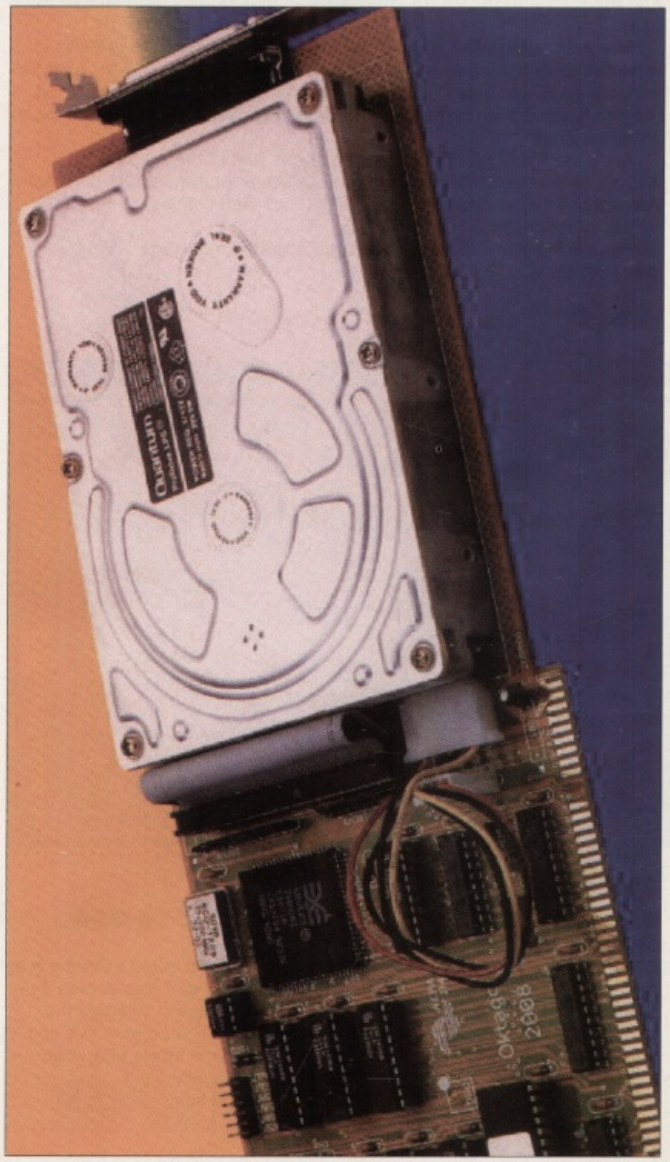
This is set to change now with the arrival of Revision 7 of the Oktagon 2008 card. The card matches or beats the GVP feature for feature, it has full RDB support, it supports SCSI-2 commands, it has a SCSI chip clocked at 25MHz on board for very fast data transfer, it supports up to 8Mb of 16-bit Fast RAM.

What makes the big difference between this card and the GVP one is the bundled software. As well as the hard disk install utility (which is very good) you get GigaMem, the virtual memory manager for the Amiga. This allows you to use part of your hard disk as (albeit quite slow) RAM. You can now run programs that require huge amounts of RAM (*ADPro, Real 3D, ProPage*, to name a few) without having to buy large amounts of RAM.

GigaMem requires an MMU (Memory Management Unit), which is a part of the 68030 chip. Unfortunately this was the part that Motorola removed to make the cheaper 68EC030 chip now used in the A4000/030, so 4000/030 owners won't be able to take advantage of GigaMem without a processor board upgrade.

Having tested two boards for two weeks, one in a 4000/040, another in an Amiga 3000, I have to say we have not had one problem. It's unheard of for a card to be that reliable in an environment like mine.

Compatible with A1500/2000/3000/3000T/4000. A4000/030 and A1500/2000 will not be able to use GigaMem without an accelerator board fitted with a 68030/40 with MMU. **95%**



ADSCSI 2000/2080

$110-$190 - ICD INCORPORATED - 0101 800 373 7700

Although this board has suffered from the success of the GVP card, this card is highly regarded, and for a while was the only SCSI card that worked with 68040 processors. This card has now been replaced in production with the new ICD Trifecta combined SCSI/IDE/RAM interface card (which was unavailable for review at the time of writing), but the original AdSCSI 2080 and AdSCSI 2000 (the same without SIMM sockets for RAM) are still available, often at excellent prices.

Unlike the GVP and Oktagon cards, the AdSCSI 2080 does not have room on the card for mounting a card. This is unfortunate, but not a problem if you have a spare drive bay to mount your hard disk in. External SCSI connection is a standard 25-way connector.

Compatible with A1500/A2000/A3000/A4000.

75%

HARDFRAME 2000

$249 - MICROBOTICS - 0101 214 437 5330

This card has been around for several years and is still available from the States. The card is one of the few true DMA hard disk controllers available, meaning the processor does not have to slow down while data is being loaded from disk.

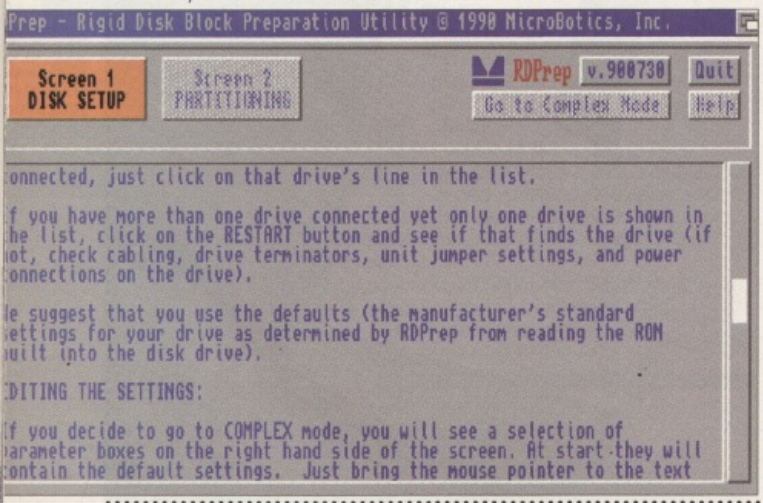
The controller was one of the first to adopt the Commodore RDB format (indeed before Commodore released their own A2091 card), and the formatting software supplied is of high quality, and simple to use.

The card is supplied with a metal frame allowing a hard drive to be attached to it, but it has no room for any Fast RAM expansion. Also no external SCSI connector is provided as standard, but a connector on the board can be wired to a standard 25-way external SCSI port with a simple Ribbon cable.

Also, the full DMA transfer precludes its use in the A3000 and A4000, or any Amiga fitted with an accelerator board with 32-bit RAM (except the Commodore A2620/A2630, and the Microbotics VXL-30 which both support DMA transfers).

Compatible with A1500/A2000 (Only CBM/Microbotics Accelerators).

77%


Prep - Rigid Disk Block Preparation Utility @ 1990 MicroBotics, Inc.
Screen 1
DISK SETUP
Screen 2
PARTITIONING
RDPrep v.900730
Quit
Go to Complex Mode
Help
onnected, just click on that drive's line in the list.
f you have more than one drive connected yet only one drive is shown in
he list, click on the RESTART button and see if that finds the drive (if
ot, check cabling, drive terminators, unit jumper settings, and power
onnections on the drive).
e suggest that you use the defaults (the manufacturer's standard
ettings for your drive as determined by RDPrep from reading the ROM
uilt into the disk drive).
DITING THE SETTINGS:
f you decide to go to COMPLEX mode, you will see a selection of
arameter boxes on the right hand side of the screen. At start they will
ontain the default settings. Just bring the mouse pointer to the text

DATAFLYER

$90 - EXPANSION SYSTEMS - 0101 510 656 2890

Oh dear! What a poor controller card this one is. You could describe it as cheap and cheerful, but I certainly wasn't happy when I was setting it up. It doesn't support RDB, it doesn't do DMA transfers, it's probably the slowest controller since the A2090 and the software is so primitive and un-user friendly that I'm sure I could write better in a spare afternoon.

Avoid this card if you can, only go for it if you really can't afford anything else. It's got a nice blue and white box, though.

24%

SUPRA WORDSYNC

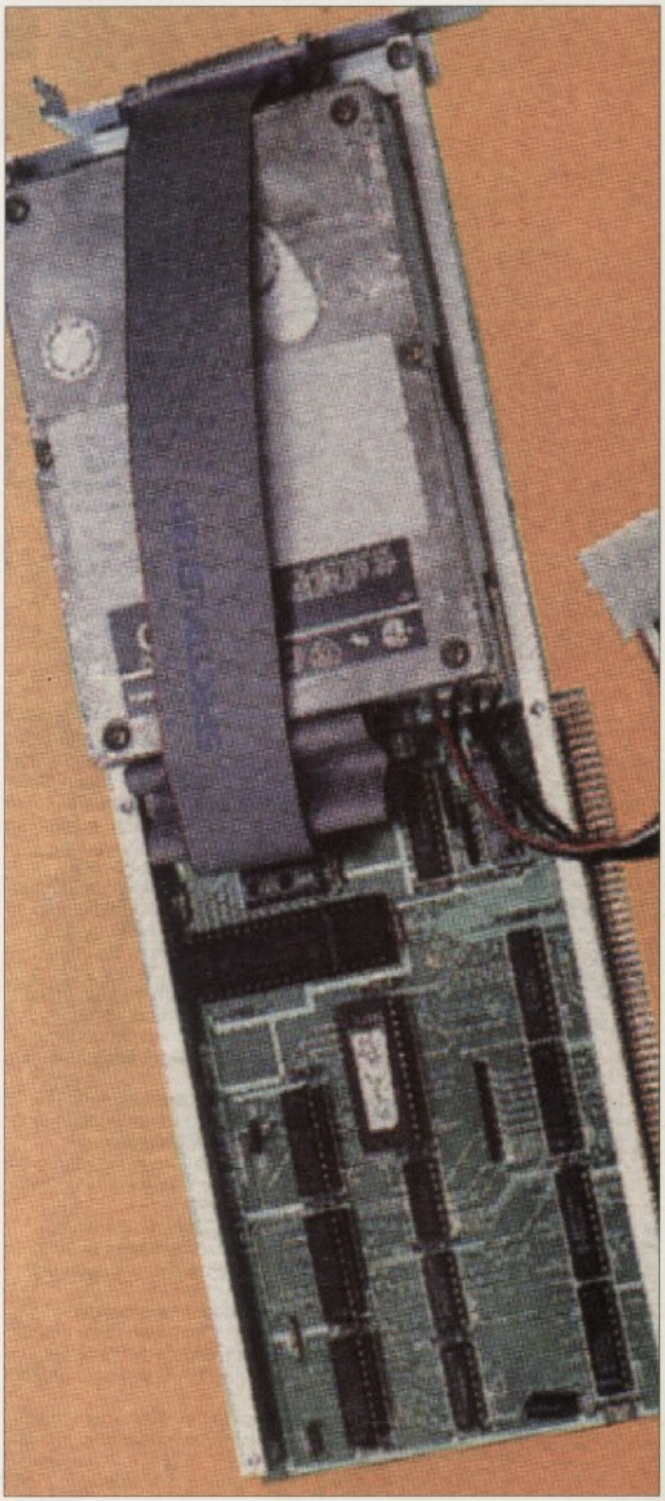
$149 - SUPRA CORPORATION - 0101 800 727 8772

Another card that's been around for quite a while for the A2000, the Supra Wordsync is a non-DMA controller with basic features, it supports Rigid Disk Block standard (but not entirely correctly). It comes with a mounting frame to connect a 3.5" hard drive, and a 25-way external SCSI connector. The software is simple to use, and quite powerful.

There are better cards available for less now, but it's worth a look if the price is right.

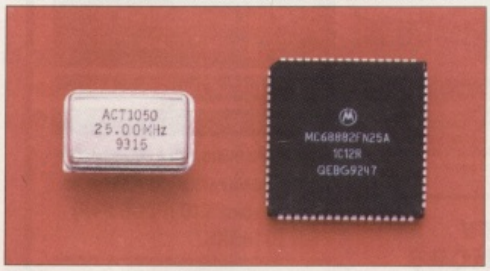
Compatible with A1500/A2000.

67%



JARGON BOX

CPS - Characters per second. Indicates how many characters a printer can print in a single second. Most home dot matrix printers can muster betwween 140 and 250, but bubble jet printers are usually slower, but their quiet operation compensates.



Co-Processor - A special chip which takes care of maths operations for the CPU, speeding up any operation that uses maths. The increase in speed can be dramatic depending on the complexity of the operation to be performed.
Co-processors come in two forms the 68881 and the 68882, with the latter being more powerful and more expensive. They also come in a variety of clock speeds from 20MHz up to 50 or 60MHz. If you use a co-pro that runs at a different speed to your CPU, you'll need to synchronise it using a crystal. Ray tracing and fractal programs can show the most significant speed increase if a co-pro is used.

CPU - Central Processing Unit or processor. This is the 'engine' in your computer, and speeding this up will speed up every single thing your Amiga does. It can be speeded up by changing its clock rate or stepping up to the next chip in the 'family'. Far greater improvements can be gained by performing the latter type of upgrade rather than the former. The standard 68000 CPU found in the A500 and A600 runs at about 7MHz.

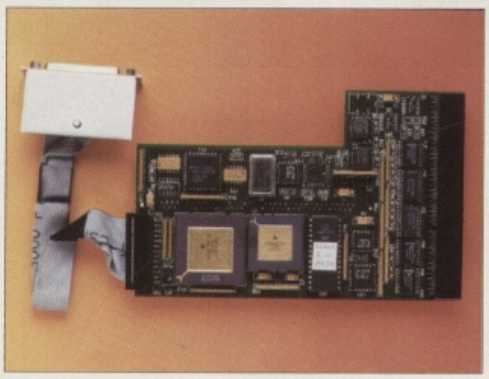
DMA Transfer - Some hard disk controllers use the processor to do the work in transferring data from the disk to memory. This slows down the machine when files are being transferred. DMA controllers contain special hardware to handle the transfer without slowing down the processor.

DPI - Dots Per Inch. When talking about printers it refers to the number of dots that it can print in a single inch. The higher the number, the better. Whilst most printers use the same figure for both vertical and horizontal resolution, some offer specifications such as 240x160DPI.
In scanning terms DPI describes the resolution that the scanner head can discern, and again the higher the number the better the result.

FPU - Floating Point Unit. See Co-processor.

PC Emulator - A piece of hardware or software which when operational allows your Amiga to 'pretend' to be a PC. How accurately it manages this depends upon the emulator, but common shortfalls are with the speed at which the emulator runs, and the screen modes it can support.

Rigid Disk Block - (RDB) A standard developed by Commodore to allow hard disks formatted on one manufacturers controller card to work on another controller.



Trapdoor slot - The expansion slot located behind the plastic 'trapdoor' underneath the A500, 600 and 1200.

SCSI - Small Computer Systems Interface. A standard that allows hard disks from different manufacturers to work together and with any SCSI controller card.

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Unless you've been living in another Galaxy for the last few years, you can't have failed to notice the infusion of excitement that CD ROM has brought to the computer world. Amiga owners are especially well placed to reap the benefits of CD ROM developments with not one, but three CD devices for them to choose from, and a fourth one on its way.

In case you're not actually familiar with the meaning of CD ROM, it stands for Compact Disk Read Only Memory, or to put it in English, CDs with massive amounts of computer data on them.

CD ROM

PIONEERING SPIRIT

Commodore have been very much pioneers in the field of home CD ROM devices and their CDTV player was one of the first stand alone devices in the world. Despite receiving an initially warm reception from press and public alike, its high price made it something of an elite bit of kit, and by the time the price fell to more reasonable levels, it was apparent that, in general, there wasn't really much in terms of quality software available for it.

The long overdue release of the A570 CD ROM for the A500 stimulated the market briefly, but didn't really seem to do much to raise the general quality of the software.

At the same time as Commodore were fighting an uphill battle to convince the world of the benefits of their technology, Philips, inventors of the compact disk, were touting their system known as CD-i (Compact Disk Interactive). Despite considerably better marketing, they encountered the same problems as Commodore, and their machine fared much the same. It seemed that the world just didn't need CD ROM.

TIME TO TRY AGAIN

Then news of a 32-bit console started to emerge in late 92/early 93. Of course, everyone was sceptical but thanks to the massive growth of CD ROM in the PC market, many people had come to appreciate the potential benefits of the medium, and were perhaps a little more receptive to the idea. Commodore for their part had learned the painful lessons of a disastrous CDTV marketing campaign. The CD32 is to be marketed purely as a games console!

When it was launched in August, the console was accompanied by a hitherto unprecedented level of choreography which meant that the media were not only aware of it, but were lining up for opportunities to say nice things about it. Fortunately for Commodore, Sega had only just launched their own CD console, the Mega CD, a couple of months earlier amidst a multi-million pound advertising campaign which had educated people to the potential for CD games. Suddenly the CD32 arrived with specifications which buried Sega's offering.

It wasn't enough that the CD32 offered better graphics, a faster processor and more memory; it was to be upgradable, and incredibly one of the upgrades will even let you play motion pictures, to say nothing of some damned fast moving games!

SEEN IT ALL BEFORE?

But, of course, we've seen it before. It's not enough to have a great machine, you've got to have the software to go with it. This time Commodore have really done their homework, and long before the machine was actually unveiled, a select group of publishers were given consoles so that they could begin writing games for it. As the countdown to the launch continued, more and more developers were given machines thus ensuring a steady flow of new software titles in the first crucial months after its release. Better yet, Commodore have clearly recognised the importance of software titles which are unique to the machine, and have commissioned six titles that won't appear on any other format.

At the time of writing there are thirteen titles available, but by the time you read this that figure will have doubled at the very least. By Christmas, you can expect to see 70, yes 70 titles available, and guess what? They're only going to cost an average of £29.99 each. It looks like Commodore are onto a sure-fire winner!

And the Future...?

It seems that industry confidence in the future of the CD32 is running extremely high, and this has been helped by the fact that Commodore have showed some faith in the product by planning a range of related peripherals to ensure that as many people as possible can benefit from the technology.

For starters, there's the FMV module which lets you play motion pictures. The module slots into the expansion socket at the rear of the CD32 and will be available in the first week of December for an estimated price of £299.

In the Spring of 1994 A1200 and A4000 owners will have the opportunity to get in on the act thanks to the CD ROM drives which will be available for their machines. No prices have yet been announced but it seems reasonable to assume a price point of £299 or less.

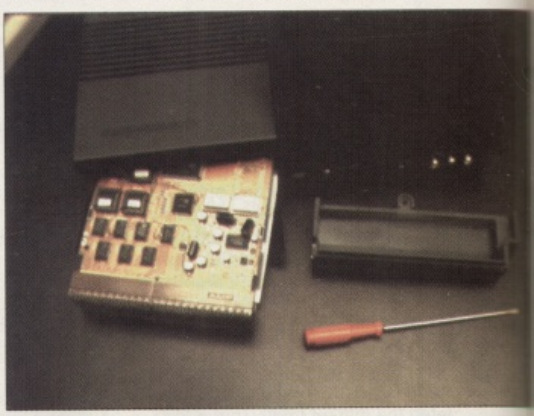
Third party suppliers have also been extremely quick off the mark and there are two major expansion boards due for imminent release. The first of these is apparently going to cost £99 and provides serial and parallel ports as well as a disk drive slot. The second expansion, which is being developed by Index Systems is a box containing a disk drive, space for a maths co-pro and up to eight megs of RAM, a MIDI interface, serial and parallel ports and a keyboard, and all for a target price of only £199. In other words you can turn your CD32 into a super deluxe A1200!

Commodore also have plans to release further peripherals, but they're keeping their cards close to their chest as usual. Watch this space for the latest news as it happens...

So what is FMV anyway?

One of the great advantages that the CD32 has is the ability to add an FMV module. But exactly what difference does that make and why is it so special?

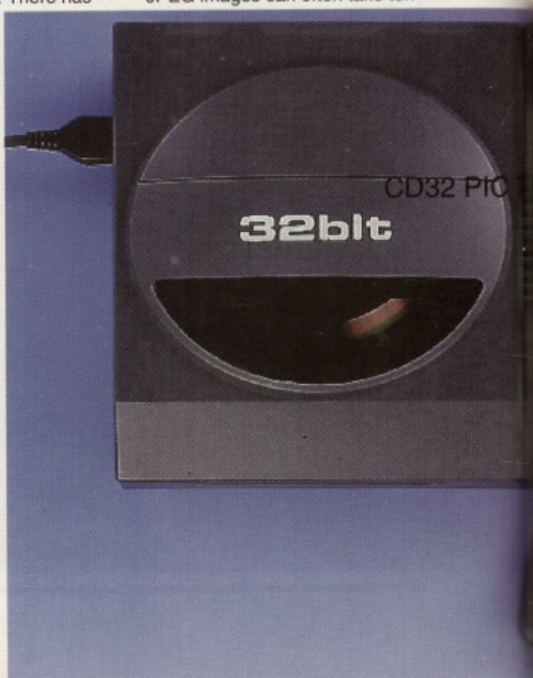
FMV stands for full motion video, and it's the latest buzzword in the computer industry. Basically it's the ability to store and replay motion picture quality animation on a computer. The greatest problem that has beset designers of such a system is the rate at which individual graphic frames can be extracted from a storage device. In order for animation to be convincing it needs to run at about 25 frames per second. If you say that an average frame occupies between 50 and a hundred Kilobytes, you can see that you'd need a drive capable of transferring data at the rate of 1250-2500k per second. Whilst fast hard drives may be capable of transferring data at this rate, CD ROM drives certainly are not. In fact, even the CD32 drive (which offers double speed loading) can only transfer data at a maximum rate of 300k per second, almost ten times slower than it needs to be!



THE CRUNCH

So, the solution to the problem lies in compressing the data before it's read from the storage device. There has long been a special form of compression known as JPEG which is ideal for crunching static photographic images by 500% or more with a minimal decrease in quality. However, even that didn't offer high enough compression so with the advent of CD ROM a group of experts got together to work out a new format for animation known as MPEG 1 (named after the people who formulated it, the Motion Pictures Experts Group).

For the first frame of an animation, MPEG works in exactly the same way as JPEG, using the same basic compression routines. However, subsequent frames use a system known as differential compression. Compression based on the difference between one frame and the next in other words. Now one of the stipulations of the MPEG format is that data should be read from the storage device at 150k per second which means that, running at 25 frames per second, each frame should occupy no more than 6k. Fortunately this is easily possible using this compression method, however the only remaining problem is the speed at which images are decompressed. Even on a reasonably fast Amiga, JPEG images can often take ten



BUT DON'T GET CARRIED AWAY!

CD32 offers a few significant advantages over other games mediums, but it's important to keep things in perspective. Probably the single greatest advantage that the system offers is the ability to contain hundreds of megabytes of data on a CD that costs a couple of pounds to produce. This encourages more complex or graphical games such as *Monkey Island* and the like, which would otherwise come on loads of disks.

Another unique advantage which CD ROM has is the ability to play full CD soundtracks, and to link them to games. Now this doesn't mean that every single sound effect is played directly from CD – the heads that read the CD can't track and play quickly enough for that, but it does mean that programs can have a CD audio track running in the background, and if sound effects don't need to be read from the disk quickly, they can accompany games. Adventure games are especially suitable. Also you shouldn't forget that in addition to the CD sound you still have the standard four track Amiga voices.

From a publisher's viewpoint, it's also very important that CD32 titles can't be pirated thanks to the sheer amount of data that each disc holds. Even if you could pirate a game, without the CD audio much of the effect can be lost.

Just because CD offers some new abilities, we mustn't forget that gameplay is the most important feature of all. For that reason, if companies choose to do straight conversions of some of their existing titles, we should be grateful that CD32 owners still have the opportunity to play them, rather than sending the companies to Coventry for not producing costly CD32 special versions. Sure it'll be nice to see stuff written specifically for the machine, but let's not forget that it's quality as well as the glitzy superficial trappings that make a good game.

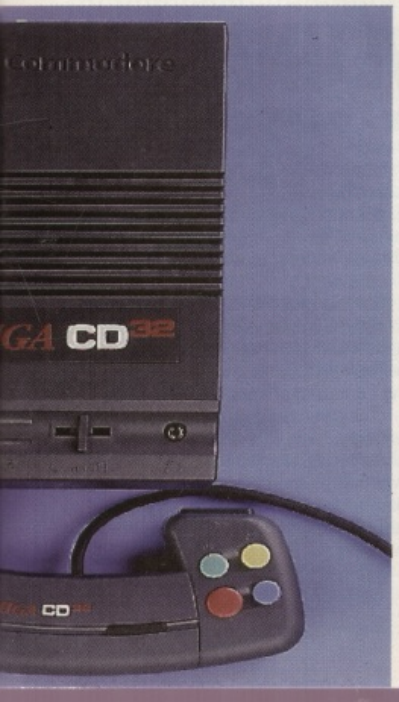
seconds or more to decompress. The simple solution is to build a dedicated chip whose sole purpose is the decompression of MPEG files, and which can do so in 1/25th of a second or less, and that is essentially what Commodore's FMV module does.

UNIVERSAL STANDARD

However that's not the end of the story, oh no! The thing about MPEG is that it's a universal standard which is not specific to any computer, which means that MPEG movies can be replayed on any computer that has the appropriate hardware. In fact MPEG hardware displays graphic images directly, without using any of the computer's display chips. In doing so it uses its own internal resolution and colour palette which is in fact at least as good as normal video. This means that if you buy a CD32 FMV module, you'll be able to replay FMV footage in the video equivalent of 24-bit colour, although the apparent resolution is not particularly high; equivalent to that of a normal TV.

THE ULTIMATE GAME

The way that the FMV image is incorporated into the display means that it's essentially treated as a genlocked video source which, in turn, means that the Amiga can overlay its own high resolution graphics without interfering with the FMV image. Imagine a video of a walk through a spooky graveyard is playing on the screen complete with an eerie CD quality stereo soundtrack. At the same time the CD32 is overlaying that image with super detailed 256 colour computer graphics as you control a character walking across the screen. Sounds good eh? Makes my mouth water just to think of it!



Arcade

We've talked enough about the theory of CD32, let's take a look at some of the stuff that's available for it...

DEFENDER OF THE CROWN 2

£26.99 - SACHS ENTERTAINMENT/COMMODORE - 0628 770088

What better program to show off the CD32 than a remake of the game that sold so many Amigas when it first appeared in the Eighties?

The object of the game is to raise sufficient funds to rescue Richard the Lionheart who has been captured whilst on crusade, and is being held hostage. You raise money by levying taxes upon the territories you own and you can increase the number of territories by going on conquests.

The game is played on a map of England which is divided into territories. Before you start you are allowed to pick one of four noblemen as your character and each of these has different attributes. Having chosen a character, you will be assigned one of the territories and a castle will be placed there. The other three nobles who are computer controlled, are also given a territory. From then on, the game pretty much consists of capturing territories adjacent to your own. If the territories are occupied you'll have to fight for them, and if they're empty you'll simply be given them. Fighting merely consists of choosing the appropriate aggression level for your attack; there's no actual action involved.

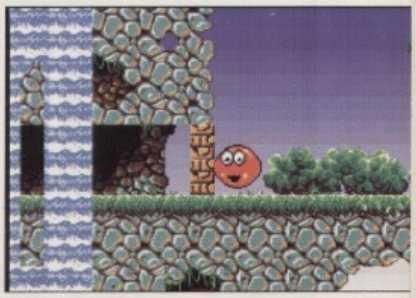
At any time you may call a tournament where you will joust against one of the other nobles. You can decide the stakes, choosing between money, fame or territories. The only time I've ever managed to beat the opponent was when I killed his horse! Incidentally, although CD music accompanies the tourny, I preferred the original tune for the records! You can also go raiding, attempting to steal money from the castle of one of your rivals. In order to succeed you'll need to win a sword fight against a couple of castle guards. This involves rhythmically pressing the fire button and moving right every so often. Challenging stuff indeed! You may also be offered the chance to rescue a Saxon maiden, and if you accept, the same sword fighting sequence is used. If you're victorious the maiden marries you and you're rewarded with a couple of beautiful animated sequences that end up in the bedroom, 'nuff said.

If you choose to attack a territory containing a castle, you'll need to use a catapult to break down the walls. This consists of pressing the joypad up or down by a specific number of clicks to set the elevation of the shot. Once you've learnt the number of clicks, you can simply repeat it each time you attack a castle. Every action you take in the game is accompanied by a CD commentary by a man with a superbly modulated voice. The graphics have been significantly enhanced, and there are a couple of new animations when riding to a castle or fighting.

CONCLUSION

Defender is a magnificent showpiece of a game in terms of audio and graphic quality, but these do nothing to mask the essential simplicity and blandness of a title whose gameplay hasn't altered appreciably in seven years.

75%



MORPH

£29.99 - MILLENNIUM - 0223 844894

With Millennium's *Diggers* already included with the CD32, it's a little surprising to see that one of their first independent releases is also a strategy game.

In response to Commodore's request for CD32 titles, Millennium have quickly converted the disk version of the game to run from CD. There are no perceptible changes to the gameplay, but as the game plays perfectly well, that's not a problem.

You play Morph, an unfortunate kid whose mad scientist uncle accidentally zaps your molecules changing you from a normal boy, into an unstable shape-shifting blob. You can exist in four forms: a gas cloud which floats upwards passing through obstacles and is highly inflammable; a water drop which falls through grills and can put fires out; a rubber ball which can bounce but will burst on spikes and a ball bearing that can break walls and which is impervious to fire and spikes, but will sink in water.

The game is divided into levels, each of which is played in one of four zones: the sewers, the lab, the garden or the factory. Although each zone has a different character, they all consist of solving problems to collect a cog in the damaged machine that transformed you, before exiting to the next level. Not only do you have a limited time to achieve this, you also only have a finite number of transformations to help you.

CONCLUSION

Although *Morph* does nothing to further CD entertainment, it's a colourful and playable title, which starts fairly difficult and ranges between enjoyable and infuriating. Not one to play for many hours at a time, but the sort of game you're going to keep coming back to. A save option would have helped as it takes so long to play.

75%

ZOOL (AGA)

£29.99 - GREMLIN - 0742 753423

The CD version of *Zool* is just the thing to shut up those console addicts who keep on about Bubsy, Mario, Sonic or other cutesy characters.

There's nothing cute about the CD version of this best selling Amiga platform game. It's slick, it's colourful, it's fast, but cute... definitely not! In fact I would even go so far as to say that what was a rather bouncy game has suddenly taken on a very sinister air about it.

A number of things combine to create this impression: first up is a superb 30 second ray traced intro showing Zool arriving at his barren home planet, before turning to kick the screen out. As you commence play a stomping CD audio track blares out, and over the top is a very unpleasant cyber voice which says in a burbly manner 'Welcome to the Nth Dimension'. As you play, each character has its own sound effect, and these too are a tad disturbing.

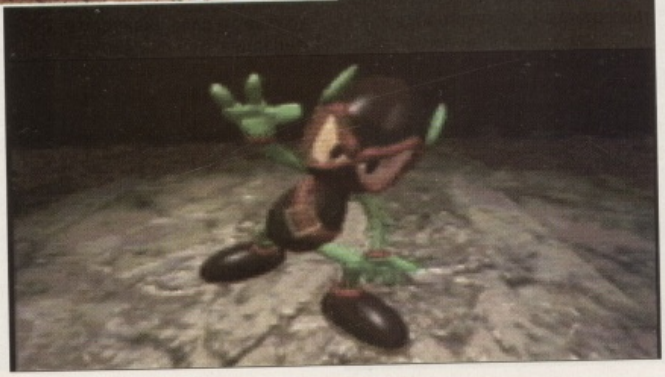
The gameplay has been significantly enhanced for CD and the biggest change is in the controls which are now much more responsive, much faster and easier to use. Climbing walls is no longer a problem, and Zool can jump further than before. The control changes combine to give the game a lot more pace, which is a double edge sword because whilst on the one hand you're moving around far easier, on the other this encourages you to leap before you look and take more chances which invariably costs you a life.

The monsters require a bit more precision to kill as far as jumping on them goes, and this takes a while to get used to.

CONCLUSION

Graphically this is simply the AGA version with awesome intros and outros. The audio really makes this game, and I wouldn't have believed that the soundtrack could make it so dark. The game is moody to play, but great. The enhanced controls are especially appreciated.

87%



DIGGERS

At CU Amiga we've always stressed that the reviews are simply our opinions, and no game has evokes such strongly opposing opinions as *Diggers*.

The game is supplied free with the CD32 along with *Oscar*. It's a strategy game and something of a cross between *Lemmings*, *Populous* and *Powermonger*. The objective of the game is to accumulate a certain amount of money or wipe out your opponent. It's played across a variety of terrains and in order to achieve your object you must mine precious minerals from beneath the surface of the planet.

To help you there are a variety of tools at your disposal to speed up the process of digging. However these tools need to be purchased, and in the early levels you barely have time to save for them before your opponent has beaten you.

CONCLUSION

The lack of a proper manual makes the game very slow to get into, and even with one I suspect it would take a good couple of hours to get much of a feel for it. Played by control pad the game is painful, but using a mouse helps things along tremendously. I enjoyed playing it at first but the repetitive nature of the tasks soon became a real pain. The CD audio tracks that accompany your efforts are fairly atmospheric to begin with, but after a while they begin to grate and I just wish there had been some way to turn them off. Disappointing.

68%

OVERKILL/LUNAR C

£29.99 - MINDSCAPE - 0444 246333

With 660 Megabytes of space on a CD, it was inevitable that sooner or later compilations would start to appear, we just didn't expect it to happen quite so soon. And one of these games hasn't even been released before! Both are shoot 'em ups modelled after classic games in the genre, and both are pretty damned good, too.

Overkill is based very closely on the wireframe arcade hit *Defender*. It features impressive scrolling backgrounds that have more levels of parallax than I can count, although there's very little background scenery.

When the game starts you're dropped from your mothership, an impressive half screen metallic monster. Unfortunately, your ship is a squirty little half inch blob, and I would have thought that it could be a bit more detailed but once you start playing it doesn't make one jot of difference.

The game basically involves flying left and right, using your radar to locate and shoot the aliens and rescuing any civilians who may be stranded on the surface of the planet. Unlike the original game, you can also get weapon power-ups to make it a bit easier.

JAMES POND 2

ADMIRAL HALF NELSON
Founder of F.I.S.H.
History: Ex-wrestler who wears an eye-patch and pins his sleeve to his jacket. He is in fact perfectly healthy. He swaps his patch from one eye to another and produces his right arm in times of danger.

£29.99
MILLENNIUM
0223 844894

Yet another conversion of an A1200 game, this time everyone's favourite fishy superhero gets the treatment.

James Pond is one of the success stories for Millennium as the character not only made it onto the consoles, but is also used on Sky's Gamesworld program.

The game is preceded by a thirty second cartoon quality animation, and if you choose to watch the advert for James Pond 3 you'll see several minutes of superb full screen animation complete with Danger Mouse like narration.

The game itself is a lively platform romp around the arctic, and although the backgrounds have been tweaked to use the AGA chip set, the actual gamelay remains the same as for all other versions. Your on-screen efforts are accompanied by one of seven jolly CD soundtracks. In fact, you can even listen to them on an ordinary CD player so long as you skip the first track.

CONCLUSION

The original game was enjoyable enough and the conversion to CD has only improved it. The controls take a little while to adjust to, but apart from that I can't fault the game.

80%

The other half of the duo is *Lunar C*, the never-before-seen element of the package. and a more blatant *Project X* clone would be hard to imagine; not that *Project X* was particularly original in its own right.

The game is a horizontally scrolling shoot em up that comes complete with power ups and a variety of alien types. Learning the way that each alien moves is the key to success, especially as they attack from behind from the word go. In fact, although the game is easy and enjoyable to play, some of the alien formations are rather silly and don't seem to give you much of a chance. However one thing that I did like was the way that your lives are represented as a power bar, rather than individual markers. This means that you can get hit, say, nine times before exploding and dying, rather than exploding nine times then dying. This gives the game more flow and gives you a better chance of getting into the swing of things.

CONCLUSION

As individual disk games these would be perfectly adequate at a budget price point, and as a CD double they represent, if not outstanding, then certainly fair value. This is a good way to give your collection a quick boost, and I really can't imagine any complaints from shoot 'em fans.

85%

PINBALL FANTASIES

£32.99 - 21ST CENTURY ENTERTAINMENT - 0235 851333

Pinball Dreams was the surprise hit of 1991, and the follow-up *Pinball Fantasies* was even more popular, but how well has it made the transitions to a CD product?

Well, unsurprisingly, it's even better on CD than it is on disk. The four tables are exactly the same as their A1200 counterparts complete with AGA colour and music. However the game has received the same treatment as *Zool*, with both the play and the sound being tweaked. In terms of game-play, the action of the ball has been slightly altered to make it respond even more smoothly and even more accurately. The ball seems to be capable of picking up frightening speed at times, transforming it into a silver blur. Overall though, the angle of the tables is perhaps not quite as steep because the ball seems to roll a touch slower.

The table layouts are exactly the same as far as I can see, but one minor disadvantage is that the game now explains the score structure using on-line helps screens which are accessible from the main option screen. This means that you can't check what to do in the middle of a game, and considering the complexity of the scoring, this is a problem if you're playing seriously.

The in-game music, whilst musically sound, doesn't seem at all improved over the disk version, and after a while it begins to grate and I turn it off.

The option screen is also accompanied by music, but this time it's a full CD soundtrack, and rather a good one at that.

If I have one major gripe about this otherwise impeccable game, it's the bloody stupid choice of controls. I mean you need a left and right button to control the flippers, wouldn't it seem logical to use the top left and right buttons on the controller? I would have thought so, but instead 21st Century decided to use down on the control pad and the blue button. Because the buttons feel different to each other, I constantly make mistakes, and it just doesn't feel completely right.

CONCLUSION

Ignoring the slightly irritating controls, *Pinball Fantasies* is definitely a must-have CD32 title. Again it doesn't stretch the machine at all, but it is an eminently playable game!

83%

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GROLIERS ENCYCLOPEDIA 2

£134.99 - XIPHIAS/ COMMODORE - 0628 770088

Although the CDTV was touted as a multi-media marvel, it's been left to CD32 titles to show just what can be achieved.

Groliers is an electronic reference source which is ideal for browsing through or using to find specific information. Unlike Hutchinson's Encyclopedia on the CDTV, Groliers is intuitive and easy to use, making it even better than books for quick research.

It can be used in a number of ways, but the quickest for research is via the fact finder. Having selected Fact Finder you'll be presented by a screen showing the letters of the alphabet. Simply spell the subject you're interested in and select Title Search. Within a few seconds a list of all subject headings containing your specified word or words will be listed. To choose one simply move the cursor over it and click the button.

If there's no subject listing, click the Word Search button and after a similar pause every single occurrence of the specified word will be listed, showing the article in which it occurs, and the number of occurrences.

Once you've selected an article, you can simply read through using the up and down arrows on the screen to move back and forth through the text. If the subject is a very involved one, chances are you'll also be offered the option to view an outline, which simply lists sub-headings within the specified subject, any of which can be selected for a more complete explanation.

Some of the subjects are also accompanied by photographs, and I would estimate that the CD contains a few hundred such pictures.

At any time you can return to the main menu, or if you're in need of help clicking the help button will produce spoken assistance as you're told how to use the system.

If you are simply browsing, you may prefer to use the Topic Tree which initially offers you a choice of six headings. Choosing one will then display a substantial list of related subjects and further subjects are nested below these prompting you to choose ever more specific subject matter until you get to an article which is exactly what you're interested in.

ARTICLE
The Groliers Electronic Encyclopedia
aircraft
KEYWORD
ARTICLE
The development of the airplane and other heavier-than-air craft has had the most far-reaching effects of any 20th-century invention. Although many scientific disciplines are involved in the rapid advances in aviation technology, none is as important as the aircraft itself. In this article
?
PRINT THIS PAGE
OUTLINE
BOOKS
GO BACK
TOPIC MENU

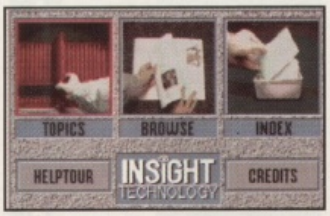
CONCLUSION

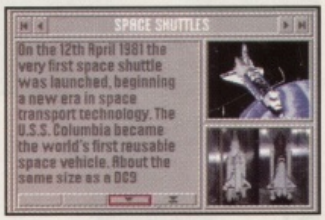
Groliers is very impressive demonstration of the multi-media concept but I would have liked to have seen considerably more pictures. It can be used for reference, education or entertainment. The entries are well written and interesting, although there is a strong American bias to everything, especially social and political sciences. It's very easy to use, and although it is expensive, it's less than a fifteenth of the cost of a decent set of Encyclopedias, and a heck of a lot less bulky!

91%

INSIGHT TECHNOLOGY

£33.99 - OPTONICA/COMMODORE - 0628 770088




SPACE SHUTTLES
On the 12th April 1981 the very first space shuttle was launched, beginning a new era in space transport technology. The U.S.S. Columbia became the world's first reusable space vehicle. About the same size as a DC9

In a computer dominated world, there's no reason why education needs to be two dimensional or boring. This fascinating title combines video, audio and text information to provide an exciting and informative technology reference.

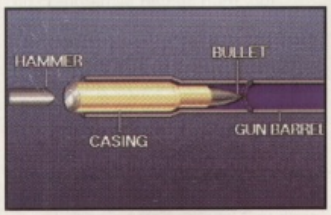
Insight Technology is a guide to the way things work, and it explains many of the things we see around us, from guns and water-wheels to robots and helicopters.

The choice of subjects is presented as an alphabetical list through which you can quickly scroll, highlighting the headings as you go. When you reach a title you like the sound of, press the button and the relevant entry will be displayed after a few moments.

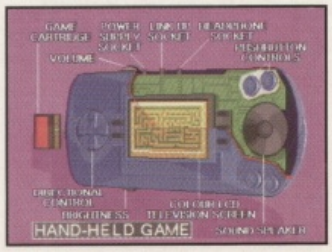
Each entry consists of text, an annotated diagram and picture sequence. You can scroll through the text at your own pace, or at any stage clicking the mini diagram will produce a full screen version of the same picture, with perhaps some very primitive animation such as colour cycling. Whilst you're looking at the diagram, a narrator gives a ten second overview of the topic. The sound quality is not amazing, but it's more than adequate, and the narrator's diction is so clear that there are no problems understanding what's being said.

If you click on the other mini-picture, the same narration is given but this time it's accompanied by a series of digitised pictures showing various aspects of the subject. These pictures are of absolutely superb quality, and greatly enhance the presentation.

Approximately seven percent of the subjects are also accompanied by video footage, complete with sound. Once the picture sequence has been displayed, the video footage begins, lasting for perhaps 20-30 seconds. This takes the form of eighth screen real-time animations. These sometimes add a little to the narration and text, the choice of image to video, as well as the subjects which contain animation is very obscure, and I suspect that Optonica merely included what was to hand, rather than commissioning anything really interesting. For example, on the section about submarines, you see some footage walking through what might be the engine room or bridge of a submarine. Either way, all you see is lots of dials, and metal furniture. I would have thought that some exterior animations would have better illustrated the subject matter.



VIDEO GAMES
The development of the electronic video game has been little short of an electronics revolution. Since the introduction of the first system for the home, PONG, an electronic tennis game invented in 1972, each new video

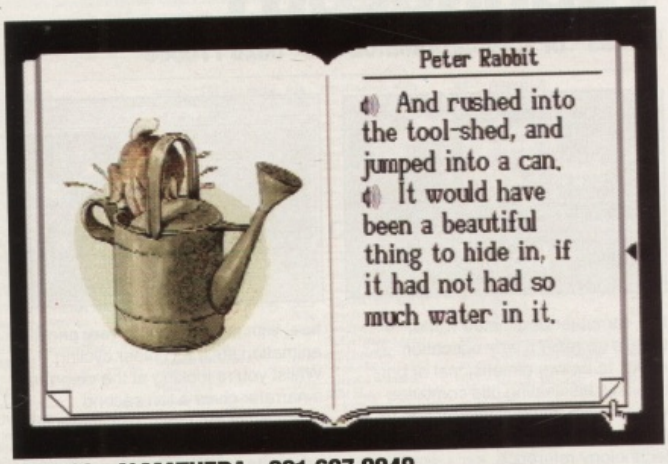


CONCLUSION

Insight Technology has a far narrower scope than Groliers, but the illustrative material and narration means that you're more likely to view every entry. It's stimulating for adults and children alike, and I think that this would be very much at home in a school library or science department. If you're interested in the way things work, and you don't want to wait till the next TV documentary to find out, then get this comprehensive and enjoyable CD.

91%

THE TALE OF PETER RABBIT


Peter Rabbit
And rushed into the tool-shed, and jumped into a can.
It would have been a beautiful thing to hide in, if it had not had so much water in it.

£24.99 - ALMATHERA - 081 687 0040

Beatrix Potter stories have been delighting children for the best part of a century. Now your children can discover new levels of enjoyment that has only become possible thanks to CD ROM.

This enchanting title is suited for children of four years and older. It tells the tale of Peter, a young rabbit, who runs into trouble when he disobeys his mother.

What makes the title so exceptionally special is the clever way that CD technology has been utilised to derive the maximum entertainment and educational benefits from what would otherwise be a pleasant, but short story.

The story is told using a digital 'book', a graphic representation of the original book. On the left hand page is a digitised Beatrix Potter picture, and on the right is the accompanying text. Using the control pad you can manipulate a cursor.

Position the cursor anywhere on the picture and click to receive a spoken description of the object beneath the cursor. If that object is Peter, you'll hear a little xylophone theme tune before an American male voice announces 'Peter Rabbit'. If you click on Mr MacGregor you'll hear him humming the first few bars of 'Old Macdonald' before his name is also announced. As each character or object's name is announced, a white box appears containing their title. This is ideal because it helps younger children to associate the spoken and written word.

If you double click on the picture, the selected object's name will again be announced, but this time the name will be followed by the phonetic (Mis-ter Muh-Gre-gor) so that children can learn how to pronounce complicated words.

When the child has spent enough time looking at the pictures, they can listen to the story by clicking the speaker icon alongside the text. A very genteel sounding English woman begins reading the words on the screen. As she does so, the lines of text are highlighted so that the child can follow along.

At various stages in the story, theme tunes are played to set the mood.

CONCLUSION

Peter Rabbit is an entrancing presentation which had me grinning for the entire time I watched it. Everyone I show it to is similarly impressed. The sound quality is a little dubious, and Discis really could have invested in a studio recording. However children are not so discerning so show me a young child who wouldn't enjoy it, and I'll show you a alien from the planet Zog!

92%

D-GENERATION

£ 29.99 - MINDSCAPE - 0444 246333

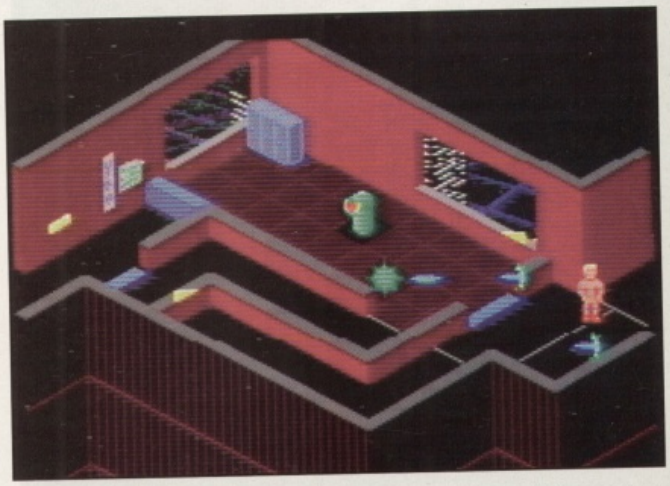
Here's another straight port over of an existing 16-bit product, but this one hasn't fared so well in the process.

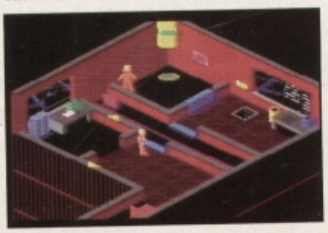
The game's plot has you as a courier trying to work your way through the floors of a genetic mutant-infested building, rescuing civilians and securing the building as you go. Why you as a parcel boy should be any better suited to this than the numerous employees of the company who are presumably used to dealing with these sort of situations is beyond me, but still...

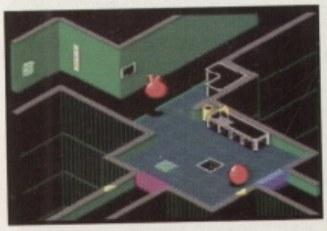
The game is viewed from an isometric 3D perspective so that you can move in and out of the screen, and behind objects. The problem with games that use this perspective has always been how the controls should work. Does up on the joypad move vertically up on the screen (and hence diagonally to the north west in the game) or should it move north east on the screen (and hence north in isometric game world). I tend to think that the latter is a better solution as you spend more time moving in the four main compass directions than you do in the diagonals. Unfortunately, Mindscape chose the former method, which is particularly irksome with the CD32's imprecise joypad because it means that most of your time is spent trying to hit precise diagonals on the controller just to move your character around on the screen. This was bad enough when you could use your own joystick, but unbearable with the CD controller.

This is such a major aggravation that I personally wouldn't spend long playing what was at best an average game on floppy disk.

Oh, and by the way, it comes in a cheapo cardboard gatefold packet instead of a CD case too.



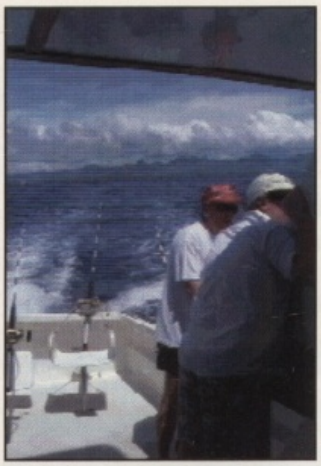




CONCLUSION

Bad controls, lack-lustre graphics, irritating sound and bad controls (yes I know I mentioned this twice, but it bears repeating!) mean that D-Generation is definitely not at the top of my 'must have list'.

65%



DEMO II

£19.99 - ALMATHERA - 081 687 0040

Having spent £300 on your CD32, you don't want to have to spend thousands more pounds in order to enjoy it. This disk brings you maximum variety and maximum value for money.

As its name suggests, the disk is primarily filled with demos of one sort or another. The program loads to present you with the Amiga Workbench screen on which there are a number of drawers, each containing files of a specific type.

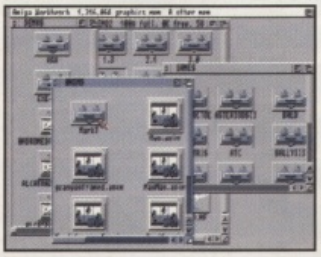
The modules drawer contains over 2000 individual tunes, ranging from rave to classical. Of course these are not CD audio tracks, but they do represent some of the best music that the Amiga has to offer.

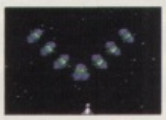
At the moment you can't buy a disk drive for CD32, although one is planned for release early next year. When it arrives musicians will doubtless appreciate the 6000+ sound samples stored on the disk.

Once you've got some music playing, you might like to look at the Animation drawer which contains dozens of animations. Many of these are *Vista Pro* landscape animations, but there are also offerings by Eric Schwartz as well as demos created on *Take 2, Cinemorph, Visionairre* and *Morph Plus*. For me this directory contained the most interesting and exciting stuff on the CD.

There's also a graphics directory containing hundreds of pictures in different screen formats. CDTV owners will unfortunately not be able to view all of the screens in this directory as many of them require the AGA chip set to be displayed.

In yet another directory there are dozens of demos, most of which combine a funky soundtrack with some form of clever animation.





Again, some of these demos will be unusable without a CD32.

The final drawer contains a selection of PD games which vary in quality and type. In fact there are over 100 titles, not all of which work with CD32.

Many of the programs and games will require a mouse in order to work properly, and this should be one of your highest priorities. If you already own an Amiga, you can use a standard mouse.

Unfortunately a small percentage of the stuff on the disk seems to crash, or simply doesn't work at all. Also, it's very irritating to have to manually rest the CD32 in order to exit a large number of the demos and games. Not only does this waste time while the Workbench loads again, it also means you have to keep getting out of bed!

CONCLUSION

Demo 2 provides an excellent an inexpensive method of acquiring a large and varied selection of programs for your CD32. Sure there are no commercial games here, but there is a good and interesting assortment of stuff to keep you occupied for weeks if not months.

CDTV & CD32 – Some stuff requires a mouse.

70%

CONNOISSEUR COLLECTION

£34.99 - ALMATHERA - 081 687 0040

For those of you with more refined sensibilities, the *Connoisseur Collection* is an excellent title which will please CDTV and CD32 owners alike.

The CD contains a massive collection of digitised art ranging between the pre-classical and early twentieth century periods.

When the program first loads you'll hear a classical CD audio track playing. There are a choice of ten tracks, and regardless of the one you choose, the others will be played in sequence afterwards.

The title screen gives you the option of choosing to examine the works from a particular artistic period, Renaissance or Baroque for instance. If you specify a particular period, the display will switch to show you some text about the period you've chosen. At any point whilst reading the text you can choose to find out about a specific artist of the age, viewing his pictures or finding out about his life and motivations.

By default, the pictures which are uniformly excellent, will be shown without accompanying text, but by pressing Up on your controller you can find out further facts about the image being shown, such as what it represents, or its inspiration or perhaps some other nugget of information.

The main menu also offers you the option to jump directly to a specific artist, or simply to browse through the hundreds of digitised pictures in the gallery.

CONCLUSION

The *Connoisseur Collection* is a beautiful, inspiring work which will bring pleasure to anyone who's interested in art and the famous artists. The pictures are of uniformly excellent quality, and whilst the music is not really up to the same high standards, the tunes have been chosen with great care and they add greatly to one's viewing pleasure.

CDTV & CD32

95%

NOW THAT'S WHAT I CALL GAMES 1

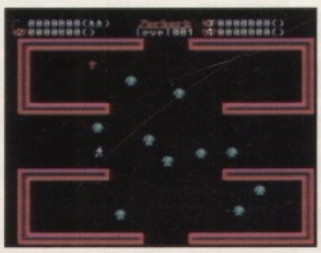
19.99 - MULTI MEDIA MACHINE - 0204 363688

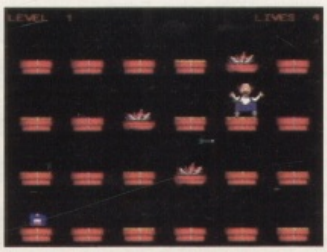
If your interests are purely games based, perhaps this bargain title might appeal to you.

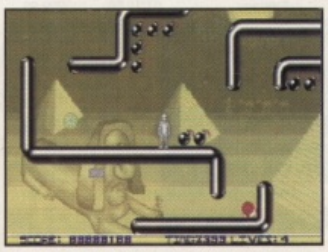
It contains fifty PD and fifty shareware games. The titles include remakes of classic board games such as Mastermind and Risk, not to mention reworkings of computer favourites like *Arkanoid*.

Unsurprisingly there is some cross-over between the titles included here, and those of Demos 2 reviewed above, however the collection is a great starter for your games library.

A mouse is essential to play many of the titles.







CONCLUSION

A good way to acquire lots of classic games, and it occupies a lot less space than 100 disks!

CDTV & CD32 - Some stuff requires a mouse.

57%

THE SOFTWARE

Okay, so we've looked at some of the titles that are already available, now it's time to look at the big picture with the definitive software list for CD32 and CDTV. We'll start with the CD32 specific stuff.

CD32 SPECIFIC TITLES

TITLE	PUBLISHER	DESCRIPTION	RELEASE DATE	RRP
Diggers	Millennium	Strategy	Out now	£0
Now That's What I Call Games 1	Multimedia Machine	100 PD games	Out Now	£19.99
Oscar	Microvalue-Flair	Platform game	Out Now	£0
D-Generation	Mindscape	Arcade	Out Now	£29.99
James Pond 2 (Robocod)	Millennium	Platform game	Out Now	£29.99
Pinball Fantasies	21st Century Ent.	Pinball simulator	Out Now	£32.99
Zool (AGA)	Gremlin	Platform game	Out Now	£29.99
Sleepwalker	Ocean	Platform game	Out Now	£29.99
Whale's Voyage	Microvalue-Flair	Space strategy	Out Now	£29.99
Overkill/Lunar C	Mindscape	Shoot 'em up	Out Now	£29.99
Sensible Soccer	Renegade	Soccer game	Out Now	£24.99
Deep Core	Int. Computer Entertainment	Shoot 'em up	Out Now	£25.99
Trolls	Microvalue-Flair	Platform game	Out Now	£29.99
Morph	Millennium	Platform	Out Now	£29.99
Dangerous Streets	Microvalue-Flair	Beat 'em up	Imminent	£29.99
Mean Arenas	Int. Computer Entertainment	Maze game	Imminent	£29.99
Total Carnage	Int. Computer Entertainment	Shoot 'em up	Imminent	£29.99
Beavers	Grandslam	Platform Game	Imminent	£29.99
Myth (AGA)	System 3	Hack & slash	Imminent	£14.99
Super Putty	System 3	Platform game	Imminent	£14.99
Ninja III	System 3	Arcade adventure	Imminent	£14.99
Int. Karate+	System 3	Beat em up	Imminent	£14.99
K240 (AGA)	Gremlin	RPG	Imminent	£25.99
Bubble & Squeek	Audiogenic	Platform game	Imminent	£29.99
Jurassic Park	Ocean	Arcade adventure	Imminent	£34.99
Legend of Sorasil (AGA)	Gremlin	RPG	Imminent	£29.99
Lit'l Divil	Gremlin	RPG	Imminent	£29.99
Zool II	Gremlin	Platform game	Imminent	£29.99
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Grolier's Encyclopedia 2	Xiphias/Commodore	Education	30/11/93	£134.99
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Project X	Team 17	Shoot 'em up	01/12/93	£14.99

TITLE	PUBLISHER	DESCRIPTION	RELEASE DATE	RRP
Alien Breed Special Ed.	Team 17	Arcade	01/12/93	£14.99
QWAK	Team 17	Arcade	01/12/93	£14.99
Assassin Special Edition	Team 17	Arcade	01/12/93	£14.99
Shadows of the Wind	Images	Unknown	01/12/93	N/A
50 game compendium	International Computer Ent.	Various	01/12/93	N/A
Gulp	International Computer Ent.	Platform	01/12/93	£29.99
Labyrinth	Electronic Arts	RPG	01/12/93	N/A
Liberation (AGA)	Mindscape	RPG	10/12/93	£34.99
Utopia II	Gremlin	Strategy	10/12/93	£29.99
Chaos Engine	Renegade	Arcade	15/12/93	£29.99
Amiga American Football	Plattsoft/Commodore	Sport game	15/12/93	£29.99
Turrican III	Renegade	Arcade	15/12/93	£29.99
Pirate's Gold	Microprose	Strategy	20/12/93	£29.99
Putty Squad	System 3	Platform game	01/01/94	N/A
Lionheart	Thallion UK	Platform	01/01/94	£29.99
Sabre Team	Krisalis	Strategy	01/01/94	£29.99
WWF	Acclaim	Beat 'em Up	01/03/94	£29.99
Lover's Guide	Supervision	Adult Edutainment	01/03/94	£29.99
Mortal Kombat	Acclaim	Beat 'em Up	01/03/94	£29.99
James Pond III	Millennium	Platform game	01/03/94	£34.99
Nick Faldo's Golf Deluxe	Grandslam	Golf game	01/03/94	£34.99
Elf Mania	Renegade	Beat 'em up	01/03/94	£29.99
Theme Park	Bullfrog	Strategy	01/03/94	N/A
King's Quest 6	Sierra	RPG	01/03/94	£34.99
World Class Cricket	Audiogenic	Cricket game	01/03/94	£29.99
Soccer Kid	Krisalis	Arcade	01/04/94	£29.99
Flight of Amazon Queen	Renegade	Graphic adventure	01/04/94	£29.99
Pinky	Millennium	Beat 'Em Up	01/04/94	£29.99
Inferno	Ocean	Space game	01/04/94	£29.99
Star Trek-Judgement Rites	Interplay	Arcade adventure	01/05/94	N/A
Top Gear II	Gremlin	Driving game	01/05/94	N/A
Stone Keep	Interplay	Adventure strategy	01/05/94	N/A
Jungle Strike	EA	Strat. shoot 'em up	01/05/94	N/A
Desert Strike	EA	Strat. shoot 'em up	01/05/94	N/A
Skeleton Krew	Core	3D Shoot 'em up	01/05/94	£29.99
Kick Off III	Anco	Football game	01/05/94	N/A
England World Cup '94	Grandslam	Soccer game	01/05/94	£34.99
World Cup Football	Mirage	Soccer game	01/06/94	£29.99
Claws	Gremlin	Unknown	01/06/94	N/A
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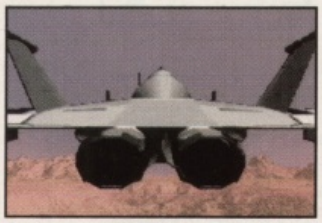
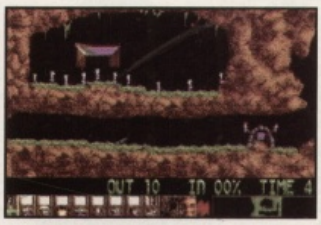
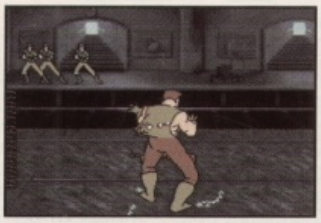
Dirt Racer	Elite Systems	Driving	01/01/95	N/A
AfterShock	Elite Systems	Helicopter Sim	01/01/95	N/A
TrashCan Satellite	Mirage	Unknown	01/01/95	N/A
Championship Manager	Domark	Strategy	Unknown	N/A
Star Trek 25 Anniversary	Interplay	Space adventure	Unknown	N/A



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Asterix English for French 2	Requires CD32 keyboard	£34.99
Asterix French for English 1	Requires CD32 keyboard	£34.99
Asterix French for English 2	Requires CD32 keyboard	£34.99
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Barney Bear Goes to School	Requires a mouse	£29.99
Cinderella		£24.99
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FunSchool 3 (5-7)		£14.99
FunSchool 3 (over 7's)		£14.99
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Mud Puddle		£24.99
MyPaint	Requires a mouse	£29.99
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Paperbag Princess	Requires a mouse	£24.99
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Tale of Benjamin Bunny		£39.99
Tale of Peter Rabbit		£24.99
Thomas Snowsuit		£24.99
ENTERTAINMENT		
17-bit Collection	Requires a disk drive	£39.99
Air Warrior	Requires CD32 keyboard	£34.99
All Dogs Go To Heaven	Requires a mouse	£24.99
Asterix & Son	Requires CD32 keyboard	£19.99
Battlechess	Requires a mouse	£39.99
Battlestorm		£19.99
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CDPD2, Requires a mouse	Keyboard/drive recommended	£19.99
CDPD3, Requires a mouse	Keyboard/drive recommended	£19.99
Classic Board Games	Requires a mouse	£24.99
Defender of the Crown		£14.99
Demo Collection 1, Requires a mouse	Keyboard/drive recommended	£19.99
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Fantastic Voyage		£34.99
Fractual Universe	Requires a mouse	£29.99
Global Chaos		£29.99
Guy Spy		£34.99
Hound of the Baskervilles	Requires a mouse	£19.99
Lemmings		£9.99
Pandora's CD	Mouse/Keyboard recommended	£4.99
Prehistorik		£19.99
Psycho Killer, Requires a mouse	Slight Sound Fault	£29.99
Raffles		£34.99
Sim City		£24.99
Snoopy - Case of the Missing Blanket	£34.99	
Team Yankee	Requires a mouse	£34.99
Tie-Break Tennis		£24.99

TITLE	COMMENTS	PRICE
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Trivial Pursuit	Slight sound fault	£49.99
Xenon II	Sound fault in the shop	£29.99
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Trees & Shrubs	Requires a mouse	£14.99
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Illustrated Works of Shakespeare	Requires a mouse	£29.99
Dr. Wellman	Requires a mouse	£54.99
Grolier's Encyclopaedia		£234.99
Hutchinson's Encyclopaedia		£9.99
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Musicolour		£49.99
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CDTV TITLES NOT CD32 COMPATIBLE

EDUCATIONAL

- Japan World
- Mind Run

ENTERTAINMENT

- Chaos in Andromeda
- Logical
- Prey - an Alien Encounter
- Sherlock Holmes
- Curse of Ra
- Wrath of the Demon
- Turrican I

REFERENCE

- World Vista Atlas
- American Vista Atlas

MUSIC

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( )B973. CYBERNETIX fast Defender clone, enhanced Amiga version
( )B990. BOUNCE & BLAST cute platform game cum shoot'em up.
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( )C350. FIREFLY vertical blast'em up
( )C557. SPACE INVASION. Brill new Space invaders clone. great stuff.
( )C082. GALAGA '92 Upto date version of Galaga from the arcades.
( )C120. CROSS OVER puzzle game
( )C169. BOMB JACKY bomb jack?
( )C174. OBLIVION defender clone
( )C177. OTHELLO
( )C206. MORIA 5.4 brilliant RPG
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( )C322. TOP OF THE LEAGUE see above....
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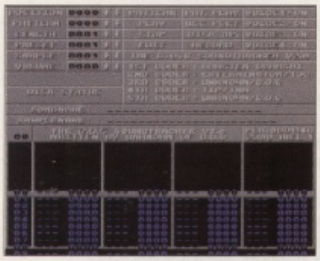
Music

It is said that music hath charms to soothe the savage beast. I don't know whether or not that's true, but Amiga owners certainly have plenty of opportunities to test the theory.

Those Amiga designers certainly were a clever lot; not only did they give it graphics that were the envy of the home computer world, they gave it the ability to replay 8-bit sound samples, and even to generate its own internal instruments.

This has naturally meant that the Amiga has become popular both as a home music tool, and just for the sheer quality of the sound effects in its games.

Whereas graphics had to undergo years of development before we started to see really superb stuff appearing as commonplace, the Amiga's sound has always been exploited as one of its strongest features, although naturally that too has progressed over the years.



***Sonix* was one of the Amiga's earliest music packages, but it wasn't very sophisticated.**

Nowhere was this progression more evident than in the games scene. In the early days, games had good music, and made use of samples but the sound was generally thought of as no more important than the colour of a screen sprite, or the shape of the game's box.

THE POP CONNECTION

All that changed with the release of *Xenon 2*, a shoot 'em up from the Bitmap Brothers. It had a really snappy title tune which was a specially commissioned remix of Bomb the Bass' then-current chart hit Megablast. Both The Bitmaps and the press raved about the tune, and from then on music gained a whole new significance in games. It wasn't long before Betty Boo and Snap got in on the act. In fact, there was an entire game based around the title of Snap's chart hit Ooops Up.

Although the Amiga world was now aware of the music industry, the music industry was certainly not falling over itself to use the Amiga. At the time, the Atari ST and the Amiga were still fierce rivals in the home market, and because the ST was fitted with a MIDI interface as standard, it became known as THE machine for home musicians.

Despite the Amiga's superior processor speed and friendlier operating environment, it never really overcame the ST in its own ground, but as Atari's machine has gradually lost out to the Amiga and PCs in other areas (games and business software for example) so too, its music following has diminished. The Amiga on the other hand has naturally benefitted from a potential world market of nearly four million machines, and so the professional music software developers finally started to take it seriously, releasing sequencers such as Dr T's *KCS* and *Bars & Pipes*.

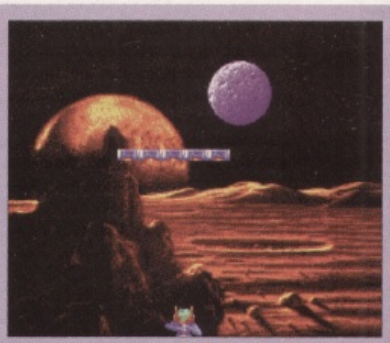
TRACKER TO THE RESCUE

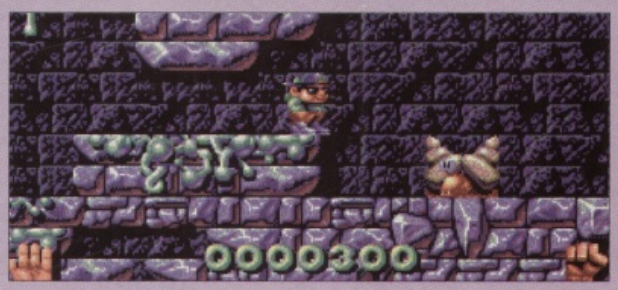
Perhaps most influential in the Amiga's growth as a home music machine has been the massive interest in tracker type programs. These programs were originally designed as a programmer's tool for creating music in demos and games. However, as the general public got hold of them, trackers such as *Master Soundtracker* and *Prosound* became extremely popular because they allowed ordinary people to write music on their Amigas. Better yet, these programs were all free, so it didn't cost the user a penny to get into the scene. As the programs became more popular, they were upgraded so that nowadays many of them have features that wouldn't look out of place in a commercial package.

Coincident with the increase in tracker popularity was a change in the pop music scene towards sample oriented and remix based music. The Amiga was at last in its element. With a host of sound samplers costing as little as £25, and the software to manipulate them, a new generation of musicians was born. The demo scene abounded and indeed still abounds with a rich variety of tracker created dance music, much of it commercial in quality.

For the last couple of years, the Amiga has appeared from time to time on television and in the media demonstrating its power as a musical tool. In the hands of professionals it will do anything you could it ask to.

Appearances on Top of the Pops and Tomorrow's World seem to confirm the Amiga's place in the professional market, and with companies such as Blue Ribbon and Mindscape investing hundreds of thousands into Amiga music hardware development, our favourite computer seems certain to have a good future ahead of it.





Bomb the Bass – Created an Amiga version of Megablast for use in the game *Xenon 2*.
Betty Boo – Created an Amiga version of Doin' the Do for use in the game *Magic Pockets*.
Snap – Used Chris Hulsbech's *TFMX* program extensively when working on their second album.
Evelyn Glennie – Acknowledged as the world's greatest classical percussionist, her entire studio is based around an A4000 MIDI setup using *Bars & Pipes Pro 2*.
Utah Saints – Responsible for a rather cool tune in the intro to *Burning Rubber*.

POP GOES THE AMIGA

The Amiga has a loyal following but unfortunately it hasn't always got the public exposure and credit that it deserves, especially in the music arena. This is perhaps due to the fact that many musicians believe that they are the sole creative force behind their work, and the tools that enable them to do what they do don't get a mention. However, there are a few notable exceptions, where the Amiga has been used by professional musicians who are far from shy about admitting to having used it. See the adjacent box for more details.

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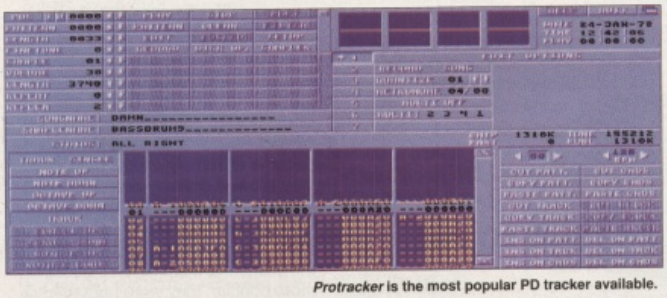
Music Composition Software

PROTRACKER 3.1

£1.50 SEASOFT COMPUTING 0903 850378



Protracker is the most popular PD tracker available.

It doesn't matter how powerful your computer or instruments are if you don't have a way to compose and record your music. In the old days that meant that you had to be able to play an instrument in real-time, and you would then record various tracks of your music using a multitrack tape recorder or studio.

Nowadays the computer has freed us from such restrictions. You don't have to be able to play an instrument, and you don't need expensive recording equipment. All you need is imagination and the right software and you can record multiple tracks for next to nothing.

Derived from the original *Soundtracker* program, *Protracker* is the most popular public domain tracker program available. But how does it compare to the commercial offerings?

In actual fact it compares very well, but then this is no surprise because they were both developed from the same origins and like its main commercial rival, Protracker has been constantly upgraded since it was first written.

THE HEART OF THE MATTER

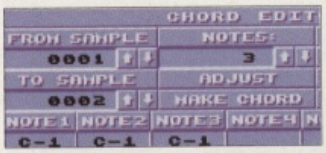
The heart of the program is the track window which contains four editable tracks, each of which is assigned to one of the Amiga's four sound channels. The two inside tracks replay through one channel whilst the outer ones play through the other. Thus it's possible to create a stereo image when composing and playing a song.

Each track consists of a list of numbers and letters, and these represent the notes which are to be played as well as the instruments to use and any special effects that are to be applied to them. Despite the fact that this approach seems more complicated initially, once you learn how to use it, it is slightly easier than a notation-based system.

Notes can be entered from the computer keyboard, the keys of which are laid out like a two octave musical keyboard. In other words the 'Z' to '/' keys are equivalent to the white keys of a musical keyboard, whilst the 'A' - '#' keys represent the black ones. The entire layout is repeated on the next two rows up as well.

RECORD A SONG

You can enter notes one at a time or, by selecting Record, you can literally



'play' the computer keyboard whilst *Protracker* records your actions. However, you can only enter one note at a time on any track, and *Protracker* will only replay a maximum of four notes simultaneously.

Each track is subdivided into 64 lines, and its on these lines that you actually enter your notes and effects. A group of four tracks is known as a pattern, and you can define as many different patterns as you want. The clever thing is, using the Play List you can specify the order in which these patterns are replayed, and you can even play the same one more than once. This means that you don't have to waste memory or time rewriting repetitious parts of a song.

CONCLUSION

Protracker has a long history and it is still the choice of a great many Amiga musicians. Whilst it doesn't have the same editing features, or ultimate power as *OctaMED*, it is a very stable program, and is much easier to use. For little more than the price of a disk, you can buy it and find out for yourself.

Compatible: Any Amiga

80%

Have You Considered...?

DATAFILES 1 & 2

£14.99 EACH - TIME & SPACE - 0442 870681

Both tracker programs on this page are capable of loading and replaying sound samples. If you own a sampler you might like to record your own sounds, but it's far easier simply to use someone else's pre-recorded sounds.

Among the commercial offerings you might like to consider are Datafiles Volumes 1 and 2. Volume 1 consists of five disks of dance music drum loops ranging from pounding club style sounds, to intricate tribal and bongo sounds. Volume 2 contains vocal loops and effects, ranging from human beatbox sounds, to soulful ad-libs and James Brown screeches.

CONCLUSION

The samples vary in quality from very good to average. The sets are quite inexpensive compared to the Gajit sets and they will greatly enhance your music collection if you like to compose dance music.

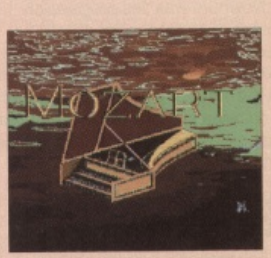
Compatible: Any Amiga

75%

What About...?

QUARTET

£49.99 - HISOFT - 0525 713671



If the tracker approach is too confusing and notation programs are too expensive, perhaps a cheap hybrid of the two is your best answer.

Quartet is clearly based upon the tracker programs in that it uses a numerical approach to music creation, however it attempts to pretty this up by giving you musical staves on which to place your notes.

Before you can do that you'll need to load some samples, and these are loaded individually or in sets of four. The program supports a maximum of four sets – sixteen samples in all.

The music editor provides you with four staves each of which is linked to one of the Amiga's sound channels. Each of the staves is divided into little boxes each of which represents a position where you can put a note using the mouse.

When positioning notes you can choose from any of the four banks of four samples, and you may specify whether the sound should be played high, low or medium (different octaves). That's it really. Songs can again be saved as stand alone pieces which don't need the program to be replayed.

CONCLUSION

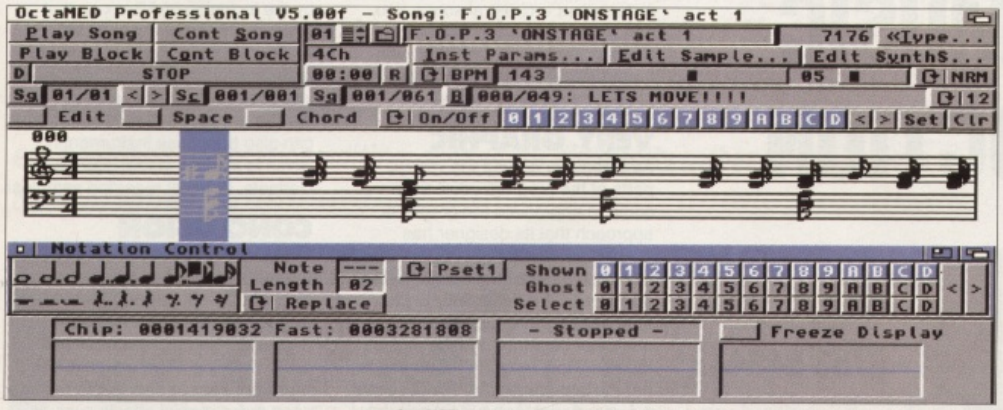
The program doesn't really contain any of the strengths of either style of music package, but it's bright and very easy to use. It's cheap enough too, so you might consider this if you can't get along with the tracker programs.

Compatible: Any Amiga

50%

OCTAMED PRO 5

£30 SEASOFT COMPUTING 0903 850378



OctaMED's greatest strength is the quantity and quality of its editing tools, which between them mean that music creation is far easier than with other programs.

If you took the best tracker program available and added every possible extra you could think of, you'd have something pretty close to OctaMED Pro!

Like *Protracker*, *OctaMED* uses a primarily character based approach to music composition but, unlike the former program, *OctaMED* supports a whacking 64 tracks if you're using MIDI, and even using just sound samples you can replay up to eight at a time.

EFFECTS GALORE

The program supports an impressive array of effects such as arpeggios and pitch and volume slides. These are primarily designed to be applied to samples and using them with MIDI is often difficult if not impossible. Even so, as a MIDI sequencer it's by far your cheapest option, and as far as sound sample replaying goes, the program is totally unrivalled.

Part of what makes it so special is its huge variety of editing tools, including a sampler, synth sound editor and even a tool for combining both. In fact, when it comes to instrument handling, *OctaMED Pro* is the only tracker which can handle nine octaves as well as loading five octave samples.

It includes a comprehensive online help facility which can be accessed by simply pressing the help key. And talking of key presses, keyboard shortcuts are available for virtually every action. Version 5 is the result of a radical redesign which also produced an entirely OS legal program that will happily multi-task, and which looks every bit the Workbench 2 program that it is. This sadly means that owners of pre-2.0 Amigas cannot load the new version, but as we keep saying, if you're serious about your Amiga shouldn't you be thinking about an upgrade by now?

CONCLUSION

OctaMED has undergone steady development over the last few years, and with each new version the program gets even better. Version 5 will take a while for old users to get used to as the screen layout is radically different but with time it will become apparent that the new design is even more flexible than the old one.

There isn't a program in the price range that comes close, and many full-price music programs could take several leaves out of *OctaMED*'s book.

A thoroughly well thought out program and well worth the asking price.

Compatible: 2.0 Amigas and above with 1Mb or more.

90%

Have You Considered...?

GAJITS SAMPLE SERIES

£2.95 EACH OR £39.95 FOR ALL FIVE
GAJITS - 061 236 2515

If you need some top quality sampled instruments, you could do worse than check out the Gajits Sample series.

Each disk in the set contains dozens of instruments of a particular type, and there are five one-disk sets available: Percussion & Effects, Guitars & Strings, Brass & Woodwind, Synth & Vocals, Piano and Keyboards.

The Percussion and Effects disk contains some particularly nice sounds such as dog barks, streams, laser and machine guns, screeching cars and telephones which are ideally suited for games programmers to include in their work.

As with the Datafile samples, the quality varies from sample to sample, although these are all sampled at a substantially lower rate which does reflect on them slightly.

CONCLUSION

Each disk contains a generous number of samples, and this is by far the cheapest way of acquiring such a broad selection of authentic instrument sounds. Worth a look.

Compatible: Any Amiga

75%

AMFC PRO

£10 - SEASOFT COMPUTING - 0903 850378

The trouble with the Amiga's music scene is that there are just too many different music packages, and files can't be exchanged between them. Or at least they couldn't until *AMFC* came along...

AMFC stands for Amiga Music File Converter and it's a utility for converting music files from one music format to another. It supports eight different file types and will convert a file in any one of them to any other supported format. The file types are MMO (*OctaMED*), MM1 (*OctaMED*), Oktal (*Oktalyser* and other eight track packages), MusicX (Junior and Senior), Star (*Startracker*), NT/ST (*Noisetracker/Soundtracker* and compatibles) and SMUS (*Deluxe Music* and *Sonix*).

Some of the formats require the user to take additional action before a conversion can be made, but in most cases it's simply a matter of selecting the file to be converted and specifying the output file and directory. *AMFC* will automatically detect the format of the input file, and will deal with it appropriately.

I tried the program with some old *Oktalyser* files and it converted them perfectly in a second or two, retaining the original samples as well. When I tried it with *Sonix* files, it converted the notes, but had trouble with some of the instruments. The program can handle .ss (sampled) sounds but cannot deal with Sonix proprietary .instr synthetic sound format. In fact it can't deal with any synthetic sounds at all. This isn't really a great problem because you can always load new samples in once the file has been loaded into its destination package. If you use *OctaMED* you can even create your own synthsounds to match those that wouldn't convert.

CONCLUSION

AMFC is a very handy utility for Amiga musicians. At last it's possible to convert your entire collection of modules into a single format. It's a great pity that the program can't deal with MIDI type 0 or 1 files as this would mean that you could create files which were industry standard and could be exchanged with other computers. Nevertheless, a superb program that should be in every musician's library.

Compatible: Any Amiga with Kickstart 1.3 or higher

85%

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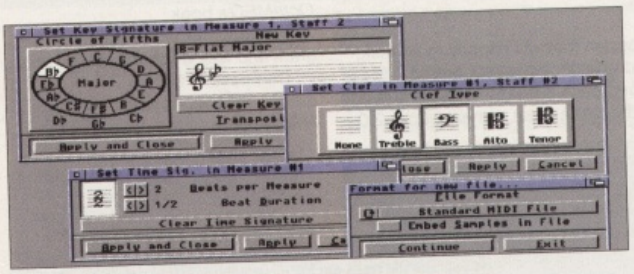
Music Composition Software

DELUXE MUSIC CONSTRUCTION SET 2.0

£99.95 - ELECTRONIC ARTS - 0753 549442



If you think that bars and quavers are friendlier than patterns and lines then chances are this is the music package for you.

The *Deluxe Music Construction Set* (*DMCS*) was first released in 1986 and has stood since then as the standard in home notation packages. There have been many other packages but none which were quite as easy to use, or as well designed. Having said that, unlike *Deluxe Paint* which has been constantly upgraded since its initial release, *Deluxe Music* has remained unchanged for seven years despite the pleas from its users. Finally, in mid-1993, after months of talking to existing users, a new version was revealed to the expectant world.

The program uses a formal notation system for note entry and display. In other words music is displayed as a series of bars, each consisting of five ledger lines onto which you can place a variety of notes ranging from a 64th note (a hemidemisemiquaver) up to a double note (a breve).

ICON SELECTION

Using the mouse, these notes are selected from a tool bar at the left of the screen. Then there are also four different supplementary tool bars which appear to the left of the main note bar. You can decide which one will be displayed by clicking the appropriate icon at the top of the screen. These sub bars allow you to modify the current notes or parts of the score by adding tuplets, pitch modifiers (sharps, flats or naturals), dots, beams, ties, dynamic modifiers and more.

Between them, the tool bars let you shape both the appearance and sound of your music, and unless you're working on classical pieces, they offer more than enough options to create professional looking scores.

As I've already mentioned, a score is written on a series of staves (staffs), each consisting of five ledger lines. You can have up to 48 staves in a score, and these may be visible or not, as you require. This means that if you want to print say a sixteen part orchestral score, you can print each part individually or as a group. Better yet, you can even transpose staffs so that one can be used for a variety of parts.

VERY GRAPHIC

As you move around the various parts of the program you'll soon come to appreciate the graphical approach that its designer has taken. Everything can be achieved using the mouse, and the requesters and menus are delightfully uncluttered making this ideal for both the computer beginner and the music student. Now I wouldn't want you to get the impression that *DMCS* is not a professional tool, it most certainly is, and there are options here that will only be appreciated by experienced musicians. It's just that it's such a great all-rounder, too.

Incidentally, if you have a MIDI instrument, you can enter notes using that, although not in real-time unfortunately. You can also enter notes using a mini keyboard at the bottom of the screen.

The menus are absolutely full to bursting with helpful options to simplify your job. These are supported by the inclusion of ARexx so that you can automate many tasks.

The program supports both MIDI and sampled instruments, and even lets you decide which speaker sounds should be played out of. You can also transpose instruments which is useful if you're scoring for clarinets, or badly recorded samples!

CONCLUSION

Deluxe Music Construction Set 2.0 is a worthy follow-up to the first version, but it's not perfect. It would be nice to see more effective MIDI file exchange, and more controllable score scrolling when a tune is being replayed. I would also like to have seen more special effects such as pitch slides, vibratos and so on.

Still, to focus on the positive aspects, there's still not a notation package which can come close to it for user-friendliness or scoring features. *DMCS2* provides you with the opportunity to create some really great tunes which look even better on paper than they do on the screen. Well worth the money.

Requires Kickstart 2 and 2 disk drives or 1 disk drive and a hard drive.

85%

Have You Considered...?

THE RUDIMENTS & THEORY OF MUSIC

£2.00 - ANY BOOKSHOP

If you've just bought *Deluxe Music* and you're eagerly entering all the sheet music you can lay your hands on, it won't be long before you encounter something that you won't understand. This book is your essential companion if you have any inclination to learn about music. It's designed as a revision aid for students who are undergoing Royal School of Music exams, but it's absolutely perfect for learning about the intricacies of the subject.

What About?

BOOMBOX

£49.95 KEY AUDIO SYSTEMS - 0245 344001

So the kids have watched you making music and now they want a go. *Boombox* is exactly what they need to have fun without spending days learning what to do first.

The program is basically an interactive song replayer. In other words you can use it to replay songs and play your effects along with it. It comes supplied with a variety of tunes, each of which has three possible styles, which are simply variations on a theme.

Tell *Boombox* to replay the tune and the music will begin. By pressing keys 1-6 on the keyboard you can trigger one of the supplementary samples that are loaded with the song. As the songs are primarily dance and rave based, these samples naturally consist of a variety of vocal whoops and screams, ad-libs, electronic effects and percussive strikes. Most integrate quite well into the tunes, but a few seem quite badly chosen as they don't fit into any playing style.

When you've practised with a play style for a while you can enter record mode where your interactive efforts are recorded in a sequence which can be saved to disk for later replay.

CONCLUSION

***Boombox* is not particularly sophisticated, and whilst it's fun for a while it's unlikely to satisfy an adult for very long. However, to a child up to the age of 12 or 13, I suspect that it will give a great deal of pleasure as they 'make' their original compositions.**

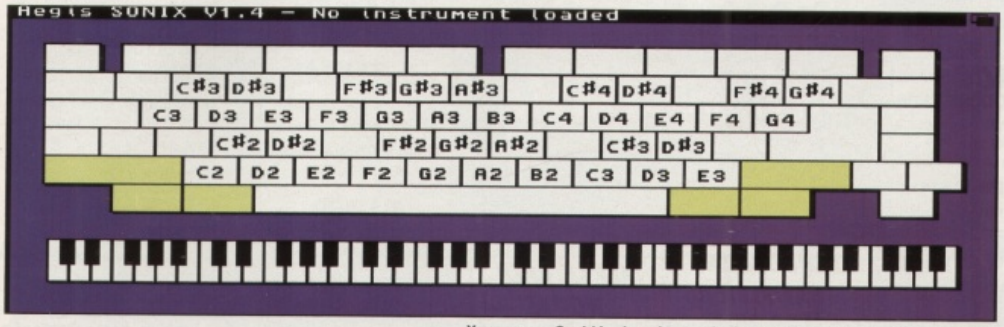
Compatible: Any Amiga with Kickstart 1.3 or higher and 1Mb RAM.

75%

SONIX

£N/A - OXXI - 0101 310 427 1227

If the idea of a notation package appeals to you but Deluxe Music is either outside your price range or seems a little complicated, Aegis' Sonix has something to offer. It is nearly as old as the original Deluxe Music, but uses quite a different approach to notation editing, aiming for simplicity rather than absolute musical purity.


Aegis SONIX V1.4 - No Instrument Loaded
C♯3 D♯3 F♯3 G♯3 A♯3 C♯4 D♯4 F♯4 G♯4
C3 D3 E3 F3 G3 A3 B3 C4 D4 E4 F4 G4
C♯2 D♯2 F♯2 G♯2 A♯2 C♯3 D♯3
C2 D2 E2 F2 G2 A2 B2 C3 D3 E3

You can use *Sonix*' keyboard to test both your samples and your playing skills.

VERY SIMPLISTIC

The main editing window consists of two staves: a treble clef and a bass clef. All notes are placed onto these two staffs. You can preset time and key signatures before you start, but that's about as sophisticated as the program gets. To place a note onto the staff, click on one of the buttons 1-8 to select a track, then select a note from the on-screen palette and simply place it on the screen at the end of the ledger line where you want it to appear. The note will slide along the line to the first available space and bar. This contrasts sharply with *DMCS* approach where notes are entered on a bar by bar basis and it's the instruments rather than the individual which relate to specific channels.

You can add a variety of instruments ranging from ordinary samples to *Sonix*' own proprietary .instr format. These are synthetic sounds which have been designed to play using the Amiga's internal envelope (waveform) generators. Although they don't generally sound as good as sampled sounds, they occupy a fraction of the space in memory and on disk, and there are special effects that can be done with synth-sounds that are impossible using samples. In fact, so useful are these synthetic sounds that *Sonix* has a separate section which you can use to generate your waveforms.

The program saves its songs as SMUS files, but the instruments cannot be saved with the file unlike the other programs reviewed here. Whilst this can be inconvenient, it can work out to your advantage when several songs on the same disk use the same basic instruments, because they can simply share a single set.

CONCLUSION

Sonix looks very unsophisticated by today's standards, and its lack of support for tied or tuplet notes is an absolute killer for serious musicians. For beginners or those on a budget it may prove more useful as it's very easy to get along with.

65%

Compatible: Any Amiga

COPYIST DTP

£249 - KEY AUDIO SYSTEMS - 0245 344001

There are times when you have to be able to print out your music, either for other musicians to play, or so that you can sell it or store it for posterity. There's no better way to do that than with *Copyist DTP*.

The DTP stands for Desk Top Publisher, and that's exactly what this program is – a musical DTP system. If only it were as friendly to use as *Pro Page*.

Copyist is not designed for your run of the mill dabbler. It's a very serious piece of kit with a deadly serious price tag. The only possible justification for this is the results it's capable of, and boy what results! A print out from this program is easily good enough for publication.

HORRIBLE EDITOR

There are several ways of getting music into the program, but believe you me, importing a file created with another program is the only one that you're going to want to use. Why? Because editing with *Copyist* is cumbersome almost beyond the point of endurance. There's none of the easy point and click convenience of *Deluxe Music*, nor even the keyboard speed of *OctaMED*. Each note's stave position must first be indicated, then the note selected using the mouse or keyboard. Finally the note tail can be added. All this rigmarole means that each note may require many keystrokes and mouse clicks to position. I don't advise this as a viable entry means, it's simply horrible!

Far more viable is the option to import a score as a MIDI type 0 or 1 file or as a *KCS* or SMUS file. This means that you can import files created with *Deluxe Music, Sonix, Bars & Pipes* and, of course, Dr T's own *KCS Version 2*. This files must then be converted into an intermediate state called a stream file. At this stage you can specify how many staffs are to be used as well indicating the note resolution and time signature.

The stream file must then be saved to disk before it can be used. Then load the stream file, and you're presented with a whole load of additional options to help tailor the file to your requirements. Once the stream file has been loaded, it will automatically be displayed using your preferences. At this point you can choose to tweak the score just to add those extra bits that even the best music packages don't support.

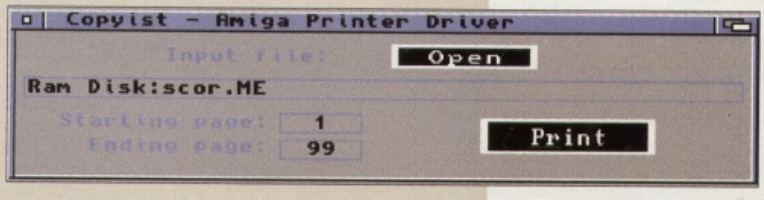
Once you've created the finished file, it can be saved as a MIDI file or printed. The program is supplied with a selection of special drivers including one for postscript printers. The print-outs really are absolutely excellent, and are easily good enough for commercial purposes.

CONCLUSION

Dr T's have a great deal to learn about user-friendliness, but fortunately the ultimate results from this program are just so damned good that despite the hassle of entering a score manually, it's still worth the effort. The program is a tad expensive, and it's very hard to justify the expense unless you really need good quality printed scores, but if you do, the program is a dream come true!

85%

Compatible: An Amiga with Kickstart 1.3 or higher and 1 meg RAM



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Music Composition Software

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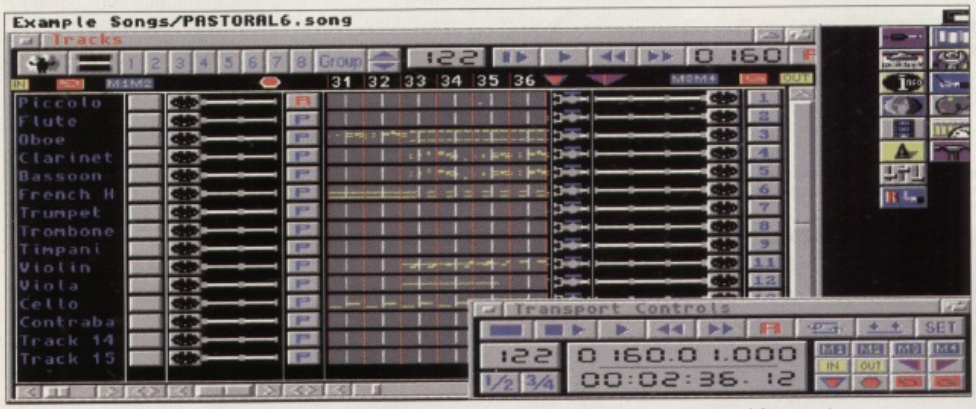


Bars & Pipes uses a graphical approach to MIDI music that helps you to relate to the flow of information around the computer.

When it comes to MIDI sequencing, they don't come more professional or more expensive than Blue Ribbon's Bars & Pipes Professional 2. Find out if it's worth the money...

Although the Atari ST is traditionally thought of as THE home MIDI computer, two Amiga packages helped to show the world that the Amiga was more than a match for the best that the ST had to offer. The first of those was DR T's *KCS*, and the second was *Bars & Pipes*.

In its second version, the program grows from being a very good sequencer to an entire multimedia tool, as at home controlling video equipment as it is controlling musical instruments.

MARIO TO THE RESCUE

B&P is what I call a 'concept program'. What I mean by that is that it approaches its objectives from the user's viewpoint, and achieves them in rather unusual ways. To get the best out of the program, you need to first understand the concept behind it. In this case the concept is to liken music production to water flowing through a plumbing system. The water enters at one end of the system, waits around in the tank for a while, then flows out of the other end. If you add dye to the water where it enters the system, the entire system changes to the new colour. If you add dye to the water flowing out of the system, only that water becomes changed.

Now consider that the instrument is at one end of the system, the computer is in the middle and the sound module is at the output end. If you start playing the instrument the musical events start flowing around the system. If you choose to perform an effect to the input end of the system, the changes become permanent and actually affects the data in the computer's memory, whereas the same effect applied at the output end merely modifies what is sent to the sound module, leaving the contents of RAM unchanged.

The program will let you play in real time on any of its tracks, and this is really what the program's been designed for. Still, it's very satisfying to see that it includes an extremely comprehensive notation editor so that those of us who aren't fortunate enough to play an instrument can create music one note at a time.

You can see up to 16 tracks on screen at a time using the song window, and these tracks are displayed in a kind of condensed view preview mode.

Running down the side of this preview screen are a bunch of icons which give you access to features such as the Mix Maestro where you can alter volume and pan settings in real-time, and the Tempo map where you can simply 'draw' the tempo for the different parts of a song.

B&P also contains comprehensive editing options, although many of the traditional options are made redundant by the power of some tools. For example, there's no need to physically transpose parts of your music when you can simply add an output tool which does the same job for you.

Supplied with this version are a large number of tools and these are the things which are applied to your music at various stages to modify the way it sounds. For instance, there's a tool which makes all notes on a channel echo, whilst another one duplicates the notes onto another channel entirely.

CONCLUSION

Once you learn how to use it, *Bars & Pipes* is the undisputed regent of Amiga sequencers. Trouble is, it's just so darned feature packed that even after a year I'm still constantly discovering new things.If youcan't afford it, sell your Grandmother, then buy it!

Compatibility: 2Mb RAM and Kickstart 1.3 or higher.

95%

Have You Considered...?

BARS & PIPES TOOLKITS

£34.95-49.95 - MERIDIAN DISTRIBUTION - 081 543 3500

Powerful as the program may be, you can make *Bars & Pipes* even better with optional toolkits.

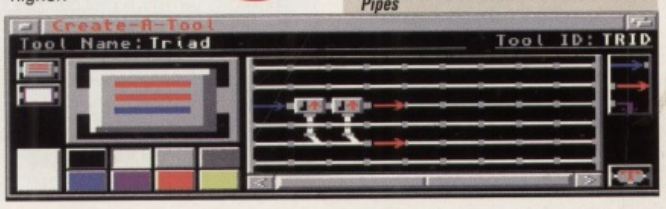
Each kit contains a selection of tools which can be used at either end of the 'pipe', input or output. Alternatively they can be 'toolized' and used to edit music via the notation editor. There are currently eight kits available, although a lot of the earlier tools were given away free with version 2 of the program.

The latest additions to the set are the Performance and Power Tool Kits. As the name suggests, the Performance kit is designed for musicians who use *Bars & Pipes* as part of a live performance. It includes options such as ForceKey which makes all played notes conform to a selected musical key and ForceChord which turns all played notes into chords. It also contains a great number of options designed to smooth and simplify many of the controls that need to be made quickly during a performance. The Power Tools are aimed at studio musicians and include options such as Guitar String Filter which is used to filter any guitar notes played on a certain string between specified frets. Another intriguing option is Swing which changes the parameters of your music to 'humanise' it.

Each of the kits contains 21 additional tools which are guaranteed to make your MIDI life even easier.

Compatible: Any Amiga capable of running *Bars & Pipes*

85%



Music Composition Software

KCS 3.5

£311 - KEY AUDIO SYSTEMS
0245 344001

When the Atari ST reigned as MIDI computer supreme, one Amiga product bravely bucked the trend. Dr T's KCS was that program.

If you were a competent musician in the Amiga's earlier days, you'd have been hard pushed to find a decent sequencer at all, let alone one which could stand against the packages found on other computers. *KCS* was the one exception, and it offered everything a professional MIDI musician required.

FOUR IN ONE

In fact *KCS* is several programs which can be linked using the MPE or Multi Program Environment. The program was written before Hotlinks became a buzzword, but that's essentially what the MPE is: several independently running programs linked by the MPE menu. If memory is short, or you don't need the other programs, you don't have to load them at all.

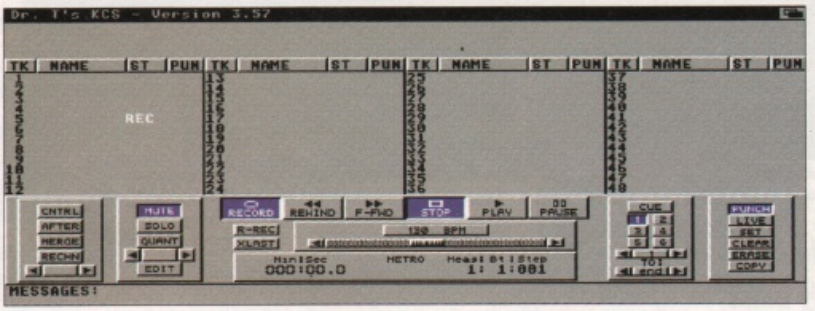
The programs are: *KCS* – the main recording section, *Tiger* – a step time recording module, *Quickscore* – a score printer and *PVG* (Programmable Variations Generator) – for getting the computer to write the music for you.

The main *KCS* program allows you to record your compositions a track at a time, either in real time, or by typing in each note in much the same way as you would with a tracker program. The program supports up to 48 tracks, and each of these is listed in the upper part of the screen, along with an indicator showing which MIDI channel the track is outputting to, and what its status is.

The main screen also provides control for Fostex tape decks although these are there mainly as a throwback to the days of multi-track recording.

The *KCS* work screen is very spartan and quite intimidating to a non-musician such as myself. If you also fit that category perhaps you might be more comfortable in the *Tiger* section of the program.

The main *KCS* screen is rather spartan, and this may prove intimidating as it's not very intuitive to use



Tiger presents your score in a graphical form, one track at a time. The upper window contains a representation of your score, with each note being shown as a thick bar with a thin stick poking out of the top. The longer the bar, the greater the note's duration and the higher the stick the louder the note. The bar's overall position vertically determines the note's pitch, the further up the window, the higher the note.

You can also draw control change information such as modulation and pitch bend. These are represented in the bottom section of the screen where you represent them as waveforms, the steeper the wave, the faster (or more acute) the effect.

Once you've created a score, you can print it out in traditional notation using the *Quickscore* program. You can choose to print a multi-track score in orchestral mode (all tracks printed one beneath the other) or in solo mode where the tracks are printed one at a time. Obviously you can also alter the clef, and you can even define tracks as drum tracks, in which case drum notation will be used.

CONCLUSION

People's reaction to this program tends to fall into only two categories: they love it or they hate it. I have to be honest and say that I fall into the latter category because the environment is just too hostile for me. However, having watched it being used by a keyboard player, it became an entirely different program and he fell in love with it because it was just so easy to record a song, building up layer after layer in next to no time. I can appreciate the *Tiger* section, and I'm very keen on *Quickscore* and *PVG* (even if the latter is monstrously complex). If you can play an instrument, then perhaps you'll take to *KCS*, but try before you buy.

Compatible: Any Amiga with 1 meg of RAM (2Mb if you want to run the MPE programs).

85%

What About...?

SEQUENCER 1 PLUS
£129.95 - GADJITS - 061 236 2515

It is considerably simpler than its rivals, and even the screen layouts seem designed to be bright and inviting. The program again consists of multiple sections. The track list is where you can play along, recording your efforts in real time, if you have the inclination, alternatively you might prefer to enter your notes in step time via the Step Editor. This uses a similar system to *KCS' Tiger* program, although whilst *Sequencer 1* is far friendlier and easier to use, *KCS* offers far more features.

The other parts of the program are the Bar Editor where you can select which to edit, the Tempo Map where you can draw the speed at which the various parts of your tune replay and the Jukebox which lets you create a song list so that multiple songs can be played sequentially.

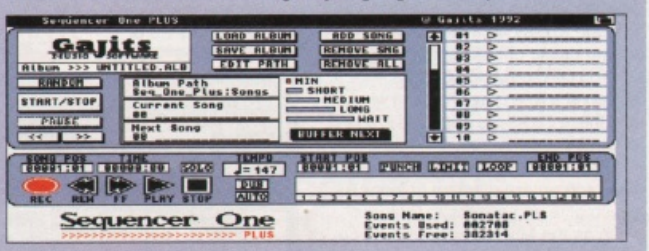
CONCLUSION

***Sequencer 1 Plus* is a very nice way for beginners to get into MIDI sequencing. Whilst its features fall a long way short of *KCS* or *Bars & Pipes*, so does its price tag. The program provides you with the tools needed to record basic MIDI music. The fact that it can load and save standard MIDI files is a bonus because if you want to upgrade to a more professional package later, you can still use all your *Sequencer 1* tunes.**

Compatible: Any Amiga

70%

You can use the Jukebox section to string many songs together into a performance.



SUPERJAM!

£99.95 - MERIDIAN DISTRIBUTION - 081 543 3500

So what if you're a talentless doodler whose best musical efforts sound like a cat in a washing machine?! There's always SuperJAM!

SuperJAM! is a great program for composing music. When I say that, I mean that it does the composing, worrying about what notes are in key, and which chords can be used, all you have to do is tell it what you want.

The program is supplied with a selection of musical styles and many more are available. The ones supplied with the program attempt to cover the generic styles such as house, rock, jazz, soul, etc.

The program can be used as a real-time composition tool, or you can choreograph your tunes and record them for future reference. In real-time mode, simply choose the style you want, and tell *SuperJAM!* to begin playing. It will play a repeating loop of music in the chosen style using sound samples or MIDI. This loop can vary in duration, but is usually less than 20 seconds long. However, whilst the loop is playing you can alter its key and pitch by clicking the keys of a mini piano at the bottom of the screen. Some of these keys will change the tune's scale from major to minor, or one of over a dozen more complex scales (diminished, etc). There are also four variation buttons which can be used to trigger different versions of the same tune, perhaps with more or less instrumentalists, or even an entirely different but complimentary tune. In addition to the variations a further set of buttons allow you to trigger beginnings, endings, breaks and fills; the latter two are simply musical techniques for moving from one part of a tune to another. All of the buttons can be triggered in real-time, as can the scale keys. There are even additional computer keyboard options for performing more complicated musical transitions.

When you start to understand the way that the program works, you can record your compositions in the step time editor. This presents you with a grid representing your tune. The grid is divided into bars which are subdivided into blocks. At the start of each block you can specify a musical event, such as a key shift, variation start, fill, etc. That means that whenever you play the tune from the start, it will always repeat exactly the same sequence of events. Now whilst this may seem limiting, the examples provided demonstrate how with skill and care you can create tunes which are of professional quality.

Once you've created a tune, it can be saved in the program's own format for later editing, or as a standard MIDI file for loading into any other package that supports them.

CONCLUSION

If you own *Bars & Pipes*, the two programs can be linked together so that *SuperJAM!* will lay down backing tracks for your original compositions. In fact, this was what the program was originally designed for, although it is great fun as a stand alone tool too. If you're a wannabe musician, now at last you can create original work of your very own!

Compatibility: Kickstart 1.3 and 1Mb RAM, but performance improves drastically with more RAM and a faster processor.

80%

MUSIC X

£129.99 - SOFTWARE BUSINESS - 0480 496497

Before the arrival of pro packages such as *KCS* and *Bars & Pipes*, one program stood alone to demonstrate that the Amiga was a viable MIDI controller. Surprisingly, four years later *Music X* still looks quite tempting.The program attempts to be all things to all men and consequently is rather a jumble of hidden screens and complicated options. This wouldn't be so bad if it weren't for the fact that the program has now hit bargain basement prices making it ideal for beginners.

EASY EDIT

Music X defaults to a sequencer screen where you can see an overview of the different parts of your song. At the top of this window are video style controls which you can use to record new tracks, or listen to those that you've already created. If you select a song section and then click the Edit button, you'll be taken to the bar editor. This is similar to *Sequencer 1*'s step time editor only much more powerful and far easier to use. As usual, notes are represented as bars of varying lengths indicating their duration. However, velocity (volume) is represented numerically and you can also specify program and control change messages as well as many other factors from this screen.

The interesting thing about it is the fact that all of the instruments are represented, each using a different colour. This makes it far easier to identify and duplicate patterns in your music.

If you are a bit of a purist, you can edit notes in a list format which is similar to, but much more comprehensive than, those used by tracker programs.

Music X also comes with a patch editor and comprehensive sample handling features.

CONCLUSION

Despite its age, *Music X* really is quite a good program and is more than capable of handling commercial standard compositions. It isn't as feature packed as its modern day relatives, but then it only costs a fraction of the price. Well worth checking out if you can't afford *Bars & Pipes*.

80%

TALIN'TED PROGRAMMER

***Music X* was written by a character calling himself Talin. Talin was christened Richard Joiner but presumably became all mystic after the incredible success of his first Amiga program, *Faery Tale Adventure*. Several of the tunes from that game have been included in the *Music X* package as examples.**

Talin went on to even greater fame switching allegiances from Microillusions (*Music X*'s publishers) to Electronic Arts, where his most recent project was *Deluxe Music Construction Kit 2*.

»

Choosing A Midi Instrument

So you've bought a wonderful sequencing package and you've spent a while using it with sound samples, chances are you're now ready to move up a step and add a real instrument. Why? Well three main reasons: the first is that most MIDI instruments allow you to replay more notes at once than the Amiga can generate internally. Typically a MIDI instrument can play at least eight sounds simultaneously although many can play 16 or even 32. The maximum number of notes that an instrument can play is known as its polyphony. Whilst the number of different instruments it can play (up to a maximum of 16) is known as its timbrality.

The second reason for buying a real instrument is the quality of the sounds it can generate. Unless you own an expensive 16-bit sound sampler, the Amiga can replay 8-bit sound samples. This means that the quality of the sound is relatively limited. Most modern electronic instruments uses sounds sampled at 16-bit resolution or higher.

The final reason to buy a MIDI instrument, if you can play one, is because you can enter music by playing the instrument directly, using the Amiga like a programmable tape recorder and mixing desk combined.

So, you've decided to buy an instrument, what should you look out for? There is one more thing to decide before you start looking; do you want a synth module or a proper playable instrument? A synth module is simply a small MIDI compatible box, and is suited to people who don't play an instrument, or who already own a MIDI compatible instrument. You can think of a synth module as a box full of samples which can be played from your Amiga. It has two advantages over full instrument: it's usually cheaper than a version with a keyboard, and it's very small so it's far more convenient because it can simply stand out of sight at the back of your desk.

Now that you know what type of instrument you want, and you hopefully have some idea of the price you want to pay, you can trot off to your local music shop to buy your instrument.

Different instruments come with different features, but the most important to a MIDI user will be the number and quality of the sounds, and how easily they can be manipulated. If you're buying a full instrument as opposed to a sound module, features such as keyboard response and after touch will also be important.

PRO MIDI INTERFACE

Before you even think of connecting a MIDI instrument, you're going to need some sort of interface to link it to your computer. The Pro MIDI is an option that allows for growth.

The interface itself is a wedge shaped lump of plastic five inches deep by four and a half wide. The unit's manufacturers, Microdeal, describe it as being 'an attractive wedge shape' which is P.R. speak for saying 'It's a bloody horrible shape but what could we do?'. At the wide end of the wedge there are four MIDI sockets, two outs, one in and a thru. The whole unit plugs into the serial port of your Amiga via a flat 16 inch ribbon cable which can be easily slipped underneath any other equipment you may have on your desk.

Once connected it's simply a matter of plugging in your MIDI cables and away you go!

Incidentally, the package also comes with a free disk full of public domain MIDI software. Among the more interesting titles is AlgoRhythms, an algorithmic music composition tool - or put in plain English it composes music for uses mathematical formulas. Sometimes the results can be wonderful, at other times they can be painful to listen to!

There's also another program by the same author called SMUSMIDI. As its name suggests, the program converts SMUS files into standard MIDI format ones. This is particularly exciting because used in conjunction with *AMFC* (reviewed earlier) it means that you can now convert every single Amiga music format to MIDI standard so that your files can be used in professional sequencing environments or can be swapped with other MIDI users on other computers.

CONCLUSION

The Pro MIDI works as expected and is reasonably priced. Chances are, you'll only ever use the in and one out port, but the existence of the others means that there's room for you to add another stand alone MIDI device if you get one. The extra disk of utilities is a real bonus and some of them are great fun. Good value.

80%

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Choosing a MIDI Instrument

ROLAND SOUND CANVAS SC-55 MK2

£649.28 - HOLLAND MUSIC - 0892 511501

If money's no object, and you want a synth module that's good enough to create a movie score with, Roland's Sound Canvas is a dream come true.

It's a musical powerhouse which comes in a stylish case approximately 9x9x2 inches in size. That means it's small enough to fit onto the most cluttered desk, or alternatively it can be incorporated into a half sized rack mount.

It can play 16 different instruments at a time, and has a 28 note polyphony. However, some of the instruments (voices) are constructed by combining two other ones (known as partials). If your music uses a lot of these 'combination' sounds, the maximum polyphony could be considerably less than the quoted figure. Fortunately, the voices which use two partials tend to be the more obscure ones like shakuhachis, 5th saw waves, ice rain and reverse cymbals. Everyday music doesn't use these sounds much, so unless you're being extremely creative you're unlikely to ever notice the restriction on polyphony.

It includes an LCD display which shows the volume of all sixteen channels as well as the velocity at which each instrument is playing. It includes switches to control stereo pan, reverb, chorus, key shift, MIDI channel, part and instrument.

The Sound Canvas is responsive to the full range of MIDI control changes so you can modulate and pitch bend notes. You can also specify after-touch and stereo pan.

Although it is GS/GM compatible, it's ironic that although it was Roland themselves who designed and instigated the GS standard, the SC-55's use of partials actually means that it doesn't fully comply as far as polyphony is concerned. It boasts 354 top quality instruments including a selection of sound effects ranging from streams, birds and the sound of the seashore, to guns, telephones and helicopters. It also includes ten drum sets from bassy house kits, to light jazz and orchestral sets. For compatibility with earlier synths, the Sound Canvas also has MT-32 and CM-64 instrument sets.

CONCLUSION

The SC-55 is an absolute delight to use. The sounds are very nice, although not quite as rich as those on the TG100. Its informative LCD display is so useful when dealing with the complexities of MIDI, and really helped me whilst I was learning. I've owned mine for over a year, and I've never regretted it for a nanosecond!

Requires a MIDI Interface.

95%

BOSS DR SYNTH

£449 - HOLLAND MUSIC - 0892 511501

The little brother to the Sound Canvas. Boss are actually a wholly owned subsidiary of Roland and the Dr Synth is essentially a Sound Canvas in a cheaper box. It features the same level of polyphony and is still 16 part multi-timbral.

The unit is supplied in a small desk-top case with an LCD display and masses of switches, buttons and dials. Considering the fact that this is the cheaper of the two modules, it's surprising to see that the Dr Synth actually has considerably more buttons, allowing you much faster changing of essential parameters, and this makes it ideal for live performance work.

Although it is still GS/GM compatible, it only has 156 tones and eight drum sets. Still, these are likely to keep you going for a good while. The missing instruments include all of the sound effects, and the MT-32 instruments as well as many of the obscure alternative sounds.

CONCLUSION

A great mid-priced tone bank that's well worth taking a look at.

Requires a MIDI Interface.

85%

DREAM GMX-1

Approximately £250 - B.E.M. 071 733 6821

If you're on a really tight budget, you can still enjoy the pleasures of multi-timbral MIDI with this little dynamo from France.

The unit is extremely basic looking, consisting of a cream coloured plastic box with a volume slider, power switch and headphone socket on the front. At the back you'll find MIDI in, out and Thru ports, a power socket, stereo phone plugs and an RS232 socket. The latter can be used to connect the unit directly to your computer without using a MIDI interface.

The unit is fully GM compatible, which means that it contains 128 GM-mapped instruments. It also has several drumkits, one of which is MT-32 compatible.

Although the unit is very basic looking, internally it still responds to all the MIDI messages (such as polyphonic aftertouch and pitch bend) that the expensive systems do. Without some sort of display it's very tricky for beginners to understand exactly what's happening when things start to go wrong.

CONCLUSION

On a power to price ratio, the GMX-1 is totally unrivalled. Sure, the Dr Synth and Sound Canvas look nicer and perform better, but for the extra hundreds they damned well should! If you get flustered easily, the GMX might not be the best choice if you're totally new to the whole business. However, if you have a bit of patience then you'll certainly find this module to be one of the music world's undiscovered jewels.

No MIDI Interface required.

94%

YAMAHA TG100

£399 - HOLLAND MUSIC - 0892 511501

If you're more concerned about the quality of your sounds than the quantity, the TG100 is good priced option. Check this baby out!

Designed surely as a direct rival for the Sound Canvas, the TG100 is Yamaha's top selling GM compatible synth module. It is of course 16 part multi-timbral and 28 note polyphonic, however it only contains 192 voices compared to the Canvas' 350. What makes the TG100 special is the quality of those voices; not that they've been sampled at a better rate or anything like that, it's just the sounds are so rich and full that they have a resonance that Roland's modules can't hope to match. This makes the TG100 perfect for modern dance music where a more substantial sound is the norm.

True, you could beef up the Canvas' sounds using reverb and even chorus, but why bother when Yamaha's offering provides the sonority that many composers seek. No-where is this more evident than its stringed instruments. Traditionally these are the hardest sounds to give body to, but not on this module.

It comes as a table top unit slightly smaller than the SC-55 and it has a single line LCD display – better than nothing, but only just.

CONCLUSION

The TG100 is very much a matter of personal taste. True it doesn't have the same impressive specifications that the Sound Canvas has, but it does sound great for certain styles of music, and it's almost half the price too. Try both before you buy. Highly recommended.

89%

YAMAHA PSR 300

£329.99 - HOLLAND MUSIC - 0892 511501

Yamaha used to produce a good range of cheap MIDI keyboards but apparently the MIDI implementation was rather flaky, so the cheap stuff was binned, leaving the PSR 300 at the bottom of the range. It's the cheapest 'serious' MIDI keyboard I could find, and it has some nice features.

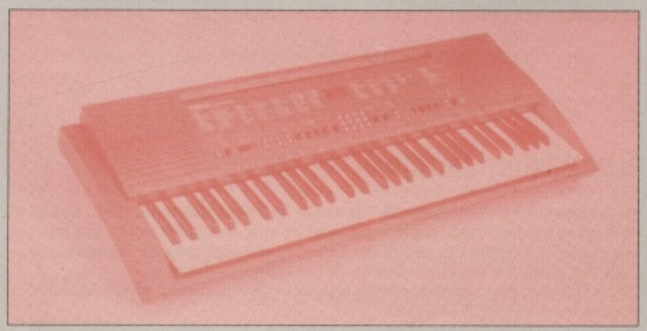
It has 28 voice polyphony and is 16 part multi-timbral, yet strangely it's not GS/GM compatible. It includes 100 voices which, like the TG100, have that distinctive Yamaha feel to them. Some people call it muffled but I think that rich is a better description.

The PSR includes a 61 key keyboard with full size, touch sensitive keys. It's very much a player's instrument as well as a programmer's. For starters it comes with 50 auto accompaniment styles which can be used to play along whilst you bang away at the keys. It also includes the option to split the keyboard so that one part plays one instrument whilst another uses a different one.

CONCLUSION

If Yamaha had mapped the instruments to conform with the General MIDI standard this would be an absolutely unbeatable bargain. As it is, the PSR300 is still great fun and ideal for the MIDI user who wants to practice his keyboard skills as well as his computer talents. A good safe entry point to the world of MIDI keyboards.

80%



Strange Moves Afoot

If you're observant you may have noticed the fact that there were absolutely loads of cheap MIDI keyboards available three or so years ago, yet now the entry level for such a keyboard is twice as expensive as it was. There are many reasons for this, one of the most important of which is to do with where the instruments are manufactured.

Most of the big players in the game manufacture their instruments in Japan, then export them to us here in Europe. At the moment the Japanese currency market is incredibly strong, and over the last year alone the Yen (which is the currency of Japan) has increased in value against European currency by more than 40%. This means that it's extremely expensive to buy from there at the moment.

Another reason for the change is the overall trend in keyboard sales worldwide. The keyboard manufacturers do market research based on the world market rather than small parts of it. This enables them to create instruments which will have the best chances of success world-wide. Unfortunately, the European market, and Britain in particular, is much, much more technologically aware, and has a greater percentage of MIDI users than the rest of the world. This means that we suffer because keyboards are designed for the lowest common denominator rather than our specific requirements. It was thanks to this fact that low end MIDI devices and Mini keyboards have all but disappeared from the European market.

One final factor which has had a massive impact, has been the growth of the computer entertainment industry which in the words of one official 'Has had a devastating impact on sales of other entertainment products over the last two years'. This has meant that the home market manufacturers have had to streamline their ranges, making every possible economy in the process.

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Choosing A Midi Instrument

Miracle Piano Tutor

£299.99 - MINDSCAPE - 0444 482545

Just because you can't afford the time for regular piano lessons doesn't mean that you can't learn to play an instrument. The Miracle is ready to teach whenever you have time to learn!

Science fiction has long been predicting a world in which robot and computers exist to do our every bidding from walking the dog to cleaning the house and cooking the dinner. Whilst such a world may be a few years away yet, Mindscape's Miracle keyboard tutor is a giant leap forwards for home computers.

Quite simply, the Miracle teaches you how to play the piano. It won't be easy, and you'll still need to put in regular practice but you won't be paying £10 a half hour for a stern faced piano teacher to show you how bad you are either!

GREAT VALUE KEYBOARD

The Miracle consists of two parts: the software and the keyboard. The keyboard is a full sized 128 key MIDI compatible instrument with velocity sensitive keys and 128 instruments. In today's market it's worth more than the asking price for the whole shebang, so you're on the right footing already. It connects to the serial interface using a custom cable which avoids the need for an additional MIDI interface.

The software, of course, is where the real power lies, after all, there are lots of MIDI keyboards out there. When it has loaded you'll be shown a number of rooms and the one you choose will determine the activity you'll engage in. The most important of them is the classroom.

In the classroom you'll be taught basic keyboard recognition and told how to position your hands and what fingers to use for what keys. You'll then go on to play simple runs of notes so that you begin to gain familiarity with the position of everything. After that timing skills will be introduced, making you play in time with a metronome or other beat. It's in this gradual layering of skills that you develops, incorporating each recently learned skill into the subsequent lessons so that the relevance is obvious, and the necessary practice is gained.

RESPONSIVE SOFTWARE

By far the most significant thing about the program is the way it responds to your efforts. Thanks to the MIDI link, it is able to monitor your every action, commenting upon your playing when necessary and giving you encouragement and guidance in an attentive and non-judgemental way that no human tutor could hope to match.

The great thing about this method of teaching is the fact that the computer never misses an error, nor does its attention wander, nor does it forget what you did last time. This means that each lesson can be precisely tailored to your own strengths and weaknesses, ensuring that you get the greatest help where it's most needed.

As a way of retaining your enthusiasm, many of the lessons come in the form of games where your proficiency in certain disciplines affects the outcome.

The tutorials are arranged in lessons, and at the end of each one you'll be offered the opportunity to play along with the 'orchestra'. The computer will play the backing band using a variety of instruments, and you are able to put your newly acquired skills to use playing the lead tune. Surprisingly even the simplest tunes sound great when played in this fashion, and the play along is one of the program's great incentives.

For younger students, successful completion of a lesson entitles them to receive a printed certificate provided you have a printer of course!

CONCLUSION

Miracle was so good that it featured on Tomorrow's World. Although it's well over a year old now, the technology has not even been challenged, much less superceded. At £299 it may seem pricey (although compared to the price of a comparable MIDI keyboard it's not), but when you deduct the price of piano lessons, especially for more than one student, you can see how the cost can be recouped in less than six months. A very exciting idea, and certainly one of the Amiga's better developments.

94%

Have You Considered...?

BLOOMSBURY DICTIONARY OF MUSIC

As your knowledge of music increases, this book is the perfect companion. Whilst it won't teach you how to play or read music, it will help to explain some of the terminology, as well as providing entertaining reading about a variety of musical subjects. Topics covered range from notation to mandolins, from Steely Dan to Orchestral layouts.

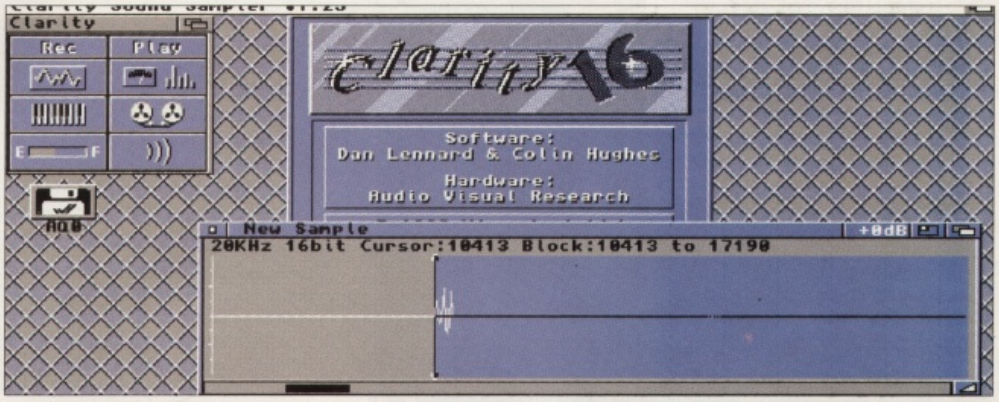
If not essential, this certainly is a highly enjoyable reference work for anyone interested in music and everything to do with it.

CLARITY 16

£149.95 - HISOFT - 0525 713671

Samplers

If you don't own a MIDI instrument the chances are that sooner or later you're going to want to record a sound and replay it through your Amiga. Why? Well because you can of course! Also because no matter how many sound samples you have available to you, you're bound to come across a sound or effect that you just have to include in your work, be it a piece of music, a demo or a game.



Strangely enough, Clarity opens a variety of windows directly on the Workbench screen.

The good news is you can buy sound samplers for the price of a game, and in the long run they're going to be a lot more fun and a great deal more rewarding.

If you're serious about sampling, shouldn't you be looking at a device that offers CD quality sound and professional sample mixing? If the answer to the above question is yes, but you only own an A500, 600 or 1200, there's only one option, AVR's Clarity 16.

When the Amiga was designed, it was given the ability to play 8-bit sampled sounds. Considering that CD players were not even commonplace back then, the fact that the Amiga could play back sound at all was fairly impressive. Of course since then the digital revolution has redefined the standards, and many people have come to see 8-bit samples as simply not good enough. The reason for this is that 8-bits represents the resolution at which the sound can be recorded. A sound is basically an analogue signal, that is to say that electrically it's represented by an infinitely divisible waveform. To store a sound in the computer's memory, it needs to be converted into a digital form. To convert the smooth sine wave of an analogue waveform into a digital format, it has to be represented as a series of 'steps'. The smaller the steps are, the more accurately they will be able to duplicate the original curved sine wave.

When you look at an eight bit sampler, the waveform is divided into a maximum of 256 vertical steps because this is the maximum value that can be stored in eight bits. By doubling the number of bits, you increase the number of steps to 65,536, a 256 fold increase in sample resolution, and equivalent to the rate at which audio information is stored on a compact disc.

The Clarity 16 samples at this rate which naturally means a significant increase in quality.

The unit connects to a computer via both the serial and parallel interfaces, and your sound source is attached to it via a pair of phoneo sockets at the back. It's supplied with software which is very straight forward to use. It provides a maximum mono sample rate of 44KHz, and even stereo can be recorded at an impressive 33KHz. The software also includes a good selection of editing and effects tools such as echos, distortions, flanging and reverberation. You can also set the position of a sound if you're working in stereo.

Once recorded, samples can be played via the Amiga, or via the cartridge itself. Because Clarity also includes a built-in MIDI interface, you can actually assign various samples to different keys on a MIDI keyboard, using the keyboard as a trigger, perhaps in a live performance. In fact, for the time being this is probably the program's best use because no music sequencing, notation or tracker programs support 16-bit samples yet. To try and combat this problem AVR have made the necessary bits of code available to anyone who requests them.

CONCLUSION

Although Clarity 16 isn't as good as the Sunrize internal 16-bit samplers, it's the only option for owners of the smaller Amigas.

Compatibility: Any Amiga with 1 meg RAM. **82%**

AMAS2

£99.95 - HISOFT - 0525 713671

If you want a sampler and you own a MIDI instrument, AMAS 2 is a good option for it combines a decent quality 8-bit sampler with a MIDI interface.

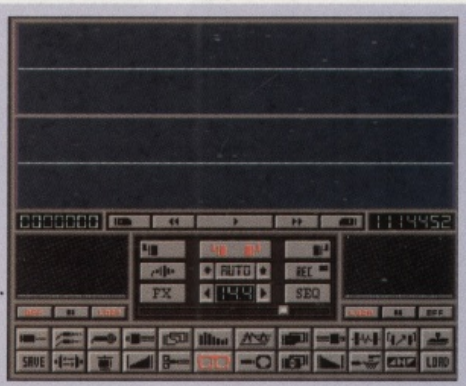
To be honest, I find it very hard to distinguish one cheap 8-bit sampler from another in terms of sound quality. That being the case, one has to compare them in terms of hardware features.

AMAS 2 comes in a wedge shaped box that plugs into the parallel and serial ports. The parallel port is for the sampler whilst the serial is for the MIDI interface.

The unit is provided with *Stereomaster 2* software, which was also included with the cheap sampler of the same name. Nevertheless, it's not too bad. The most popular options are represented by easy to recognise icons and the screen is pleasant on the eyes, something New Dimensions would do well to notice!

The input level of a sound can be software controlled which is a nice feature even Clarity 16 doesn't have. It basically means that you can control the volume of an incoming sound without having to mess around with your hi-fi or whatever; very handy when sampling from equipment that provides fixed volume output.

Samples can be recorded in mono at over 59KHz



and the menus contain many additional features such as 3D display of samples, a spectrum analyser and the usual batch of special effects such as echos, reverb, etc.

CONCLUSION

AMAS 2 is ideal for the budding Amiga musician. Whilst it's not the best 8-bit sampler in the world, it's better than most, and the added MIDI interface means that you won't have to splash out on a separate one. Pretty good.

Compatible: Any Amiga with 1 meg RAM. **78%**

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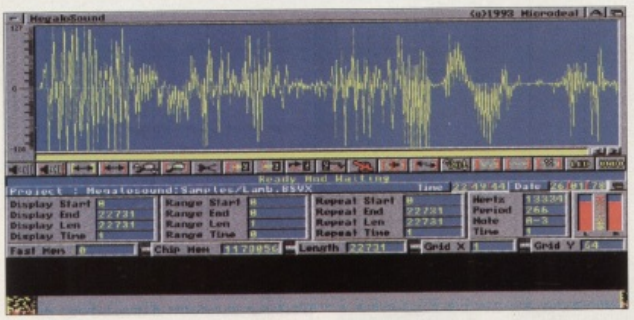
Sound Samplers

MEGALOSOUND

£34.95 - HISOFT - 0525 713671



If you're short of memory, one option is a sampler which records direct to disk. Megalosound fits the bill perfectly.

The budget sampler market has always been a hotly contested one, with the consumer coming out the winner as companies such as Microdeal, New Dimensions and Rombo slugging it out, adding ever more features in the hope of taking your cash. Whilst the list of features has risen, the hardware quality has stayed very much the same, but now it seems as if Megalosound may have gained a slight advantage.

CLEVER SOFTWARE

The first thing that I noticed about the software is how intelligent it seems to be. Because of the vast range of Amigas out there, it needs to configure itself to your exact system, and surprise surprise, that's exactly what it did on each of the Amigas I tried it on. It correctly identified my processor, the amount of RAM and available drive space.

Anyway, once the program's loaded, you're greeted by the main screen which is divide into two halves. The top half contains the waveform window where any samples that you record will be displayed. The bottom half contains the current options. The commonest editing and replay options such as cut, magnify, ramp. etc, are represented by a strip of icons, and these are permanently on the screen. Below this strip is a message line where you will be informed of the current status of the software. Below that is the current name and a real-time clock and calendar. Below those, the menu panel.

Running along the top of the menu panel is a list of section buttons, and clicking on any of these will fill the remainder of the screen with icons and options appropriate to the button pressed.

The most important of these is the sampler button, which calls up the sampling options screen. As I've already mentioned, you can sample direct to disk (floppy or hard), and of course you can also sample to RAM. The maximum sampling rate is determined by the speed of your processor, so on a 68040 machine the rate could be extremely good. On a 68030 it could manage 59,000 Hertz in mono, whilst on an A1200 it offered a maximum of 44,300, still very impressive.

DIRECT TO DISK

If you choose to sample direct to disk, the available space on the drive will be analysed, and you can then indicate how much of that you want occupied by the sample. If you have a lot of memory, you can specify a large RAM buffer for the sample to be recorded into. It's only as this buffer fills up, that the program will start to write to disk.

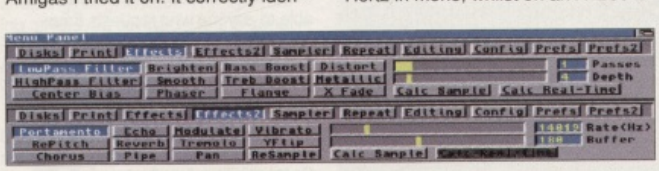
The program also contains a great many special effects, most of which can either be applied to the sample in memory, or real-time to an incoming signal. These include flanging, modulation, metallic, bass and treble boost, brighten, vibrato, modulation, reverb, tremolo, chorus and many others. Although some of these effects are clearly included purely for their entertainment value, many of them are very useful in a semi-pro environment, especially for MCs.

CONCLUSION

Megalosound is very friendly to use, and the user-interface is a delight which I felt assisted my enjoyment of the sampler, rather than acted as an obstacle to it. The hardware is adequately constructed, and the addition of an input level dial is a great bonus. Direct to disk recording makes it feasible to construct entire performances on a hard drive, and there are even a couple of replay programs included. This is undoubtedly the best budget sampler of all time!

Compatibility: Any Amiga with 1Mb RAM.

93%



Technosound 2 certainly has more special effects than any other program, and its these that make the program so much fun for non-serious users.

What About...?

TECHNOSOUND TURBO 2

£49.95 - NEW DIMENSIONS - 0291 690901

Technosound has been one of the best-selling Amiga sound samplers in Europe. With the emphasis clearly on fun rather than quality, Technosound 2 hits the streets.

The unit consists of a small box that plugs into the parallel interface, much the same as Megalosound. However, not only does it not include a hardware input dial, it costs £15 more. Why? Well to be honest I'm not really sure. The hardware is no different to that supplied with the original Technosound, so all changes are to the software. Unfortunately that is as gaudy as ever, perhaps with the notion that bright automatically means fun; it doesn't...

Nevertheless, Technosound is very much a sampler for the kind of person who's never heard of stereo panning or input levels, and wouldn't care if he had. It's pretty much a plug-in and go type of unit.

The software samples reasonably enough, and New Dimensions were in fact the first ones to offer direct to hard disk recording. For some reason they've chosen to completely ignore the standard operating system, preferring instead to use their own custom menus and requesters, which would be fine if they were better, but sadly they fall far short of Commodore's guidelines.

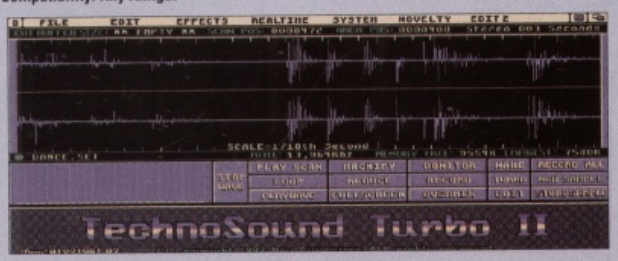
Still, the software does have more gadgets and special effects than any other budget sampler, many of which can be performed in real time. Rather than the studio type effects found in Megalosound, Technosound has evocatively named effects such as Deep Sea Diver, Chopper, Dark Vader and Awful the Duck (!).

CONCLUSION

Even before Megalosound came along, TT2 was looking rather pricey, now it just seems downright expensive. True the effects are fun for a while, and the sampling quality is as good as its rivals, but there's something very superficial about the program's design and appearance that I've never liked. Perhaps younger users may enjoy the Blue Peter DIY look, I do not.

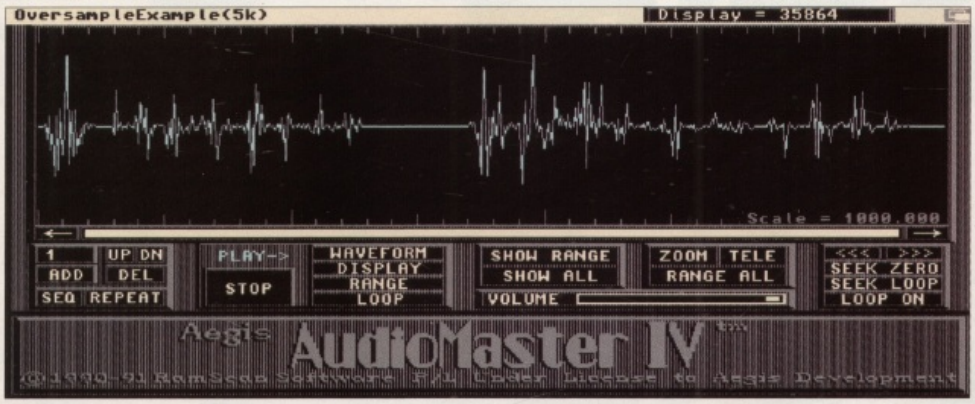
Compatibility: Any Amiga.

70%



AUDIOMASTER 4

TBA - HISOFT - 0525 713671



It's all very well having a powerful sound sampler, but if you can't edit the sounds afterwards then they're very limited. Most samplers are OK, but you can't beat a dedicated sample editor...

Audiomaster is undoubtedly the longest running editor on the Amiga, and it's now up to version 4. It consists of two main sections: the sampler and the editor.

The sampler is designed to work with most hardware samplers, and simply permits you to record mono or stereo samples at up to 55,930 Hertz (assuming your hardware can handle such frequencies). Sampling can be started manually, or using the VOX feature which triggers the recorder only when sound of a certain volume is heard.

If you don't own a sampler, you can use the program purely as an editor, and this is where its real power lies. Once you have a sample in memory (either by loading one or recording it) there are a range of editing, filtering and effects that can be performed upon it. To be fair these are far less in either quantity or interest value than the effects contained in Technosound or Megalosound's software. However, the significant difference is the quality and speed of Audiomaster's options. There are no quacks or daleks here, but if you're editing samples for serious use this is the package to use.

In the Edit1 menu you'll find the usual Cut, Paste and Copy options that are essential in any editing software. You'll also notice that memory permitting, the program supports a spare buffer, and it's possible to mix samples together by using this facility. Talking about basic editing, the program also provides a freehand drawing facility which becomes exceptionally powerful when used in conjunction with the program's powerful magnify options.

By dragging the cursor across the screen, you can quickly define a range. It's then possible to perform most editing operations upon the range instead of the entire sample. You can also zoom into the selected range so that it fills the display. Alternatively you can use the Zoom button to perform a real-time zoom, centring on the indicated range. This is a very impressive feature which means that you can quickly find the optimum level of magnification for your current requirements.

It's in the Effects menu that the most powerful options are to be found, and I find that they are particularly useful for altering incorrectly recorded samples. For example you can use the Tune Waveform option to retune a sound, whilst Change volume can be used to increase or decrease the overall loudness of a sample – you can even specify a different volume at the start to the end. These are just simple examples though, echoing and flanging are also available but by far the most exciting options are in the Duration/Pitch requester. Here you can alter the duration of all or part of a sample without altering its pitch, and conversely you can alter its pitch without affecting its duration. These are options which are traditionally found only in commercial hardware sample editors, so their appearance is a great bonus.

CONCLUSION

Audiomaster is a very high quality sample editor. Almost all aspects of the program are intuitive to use, and although Megalosound is snapping at its heels, I think in terms of the speed and quality of the results Audiomaster still crosses the line first, but the gap is always closing, and of course, with the former program you get the sampling hardware as well. Compatibility: Any Amiga.

85%

What About...?

AUDITION 4

£49.95 - Micropace - 0753 551888

As manufacturers' of the best Amiga samplers money can buy, it's no surprise to see that Sunrize Industries also produce a sample editor. But how does Audition 4 stand up to the competition?

The program was designed as a rival for Audiomaster 3, and at the time offered many features not included in Oxxi's program. Oxxi struck back with Audiomaster 4, and included many of the best features of Audition 4. However, Audition still has a number of tricks up its sleeve.

The main advantage of the program is that it's both quick and small. Its compact size makes it ideal for use on machines with a meg of RAM or less. Without wanting to labour the point, it contains all the same basic sampling features found in all the other packages, such as cut, paste and copy, etc. Naturally, it's down to its special features to make Audition 4 stand out. Yet again, it has a range of audio effects that are similar to those offered by Technosound and Megalosound. Flange, echo, fade, bass and treble boost, etc. These can also be performed in real time.

CONCLUSION

Coming from Sunrize the sound quality of samples edited with Audition 4 remains excellent, and the program has many nice features. The only thing is, the competition seems to be such good value, that it's hard to justify the expense. Still, a good solid program, that's worth purchasing if you see it in the bargain bucket somewhere.

Compatibility: Any non-AGA Amiga

80%

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GLOSSARY

GS
Short for General Standard. A standard for MIDI instruments developed by Roland. It is a standard way of organising sound data within a MIDI instrument so that music on one GS instrument can be replayed on any other, regardless of its manufacturer. Part of the GS standard specifies the minimum number of instruments as well as the order they're arranged in. It also specifies the effects that can be applied to a sound, and the instructions required to apply them.

MIDI
Musical Instrument Digital Interface. Literally refers to the type of connection present on electronic equipment, usually computers or instruments, which permits the exchange of control commands between devices. Whilst these commands will usually be involved in the replay of music, they may sometimes be used for controlling more exotic equipment such as lights and mixing consoles.

Notator
Any music package which uses the traditional system of bars and staves for note entry and display. *Deluxe Music* is the best example of such a program.

Real-time
When using a piece of software, real-time means that you are performing an editing or recording function 'on the fly'. In the case of sequencers, this means actually playing an instrument at the right tempo, and hopefully hitting the right notes.

Sequencer
Any program which can store a list of musical playing instructions, and can replay the list in real time to create music. Although tracker programs may literally be referred to as sequencers, the term is usually reserved for MIDI packages, especially those which accept real-time input.

Step-time
In the case of sequencers, step-time is the opposite of real-time. It means that you enter music in your own time, with no pressure to get each note right. You may be using a keyboard or the mouse or you might simply be editing lists of numbers at the computer keyboard.

Tracker
The generic name for any music package which uses a character based note entry system and whose lineage can visibly be traced back to *Master Soundtracker*, the first such program to become popular.

Traditional Notation
The system of representing music as a series of dots on a set of five ledger lines. Sheet music uses this system.

Velocity Sensitive
Refers to an instrument that responds to how hard you play it. For example, the harder you hit a piano key, the louder the note will be.

No Man's An Island

Okay, so by now you're hopefully making sweet music. Why not share your interest with other like-minded people? AM/FM stands for Amiga Musician's Freeware Magazine and it's a monthly disk publication put together by enthusiasts for enthusiasts.

Each issue comes with a selection of tracker songs and MIDI files for you to listen to. There's also a variety of articles and product reviews as well as a selection of PD titles to help you follow your musical interests.

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AM/FM costs £2.50 an issue and is available from Seasoft Computing.

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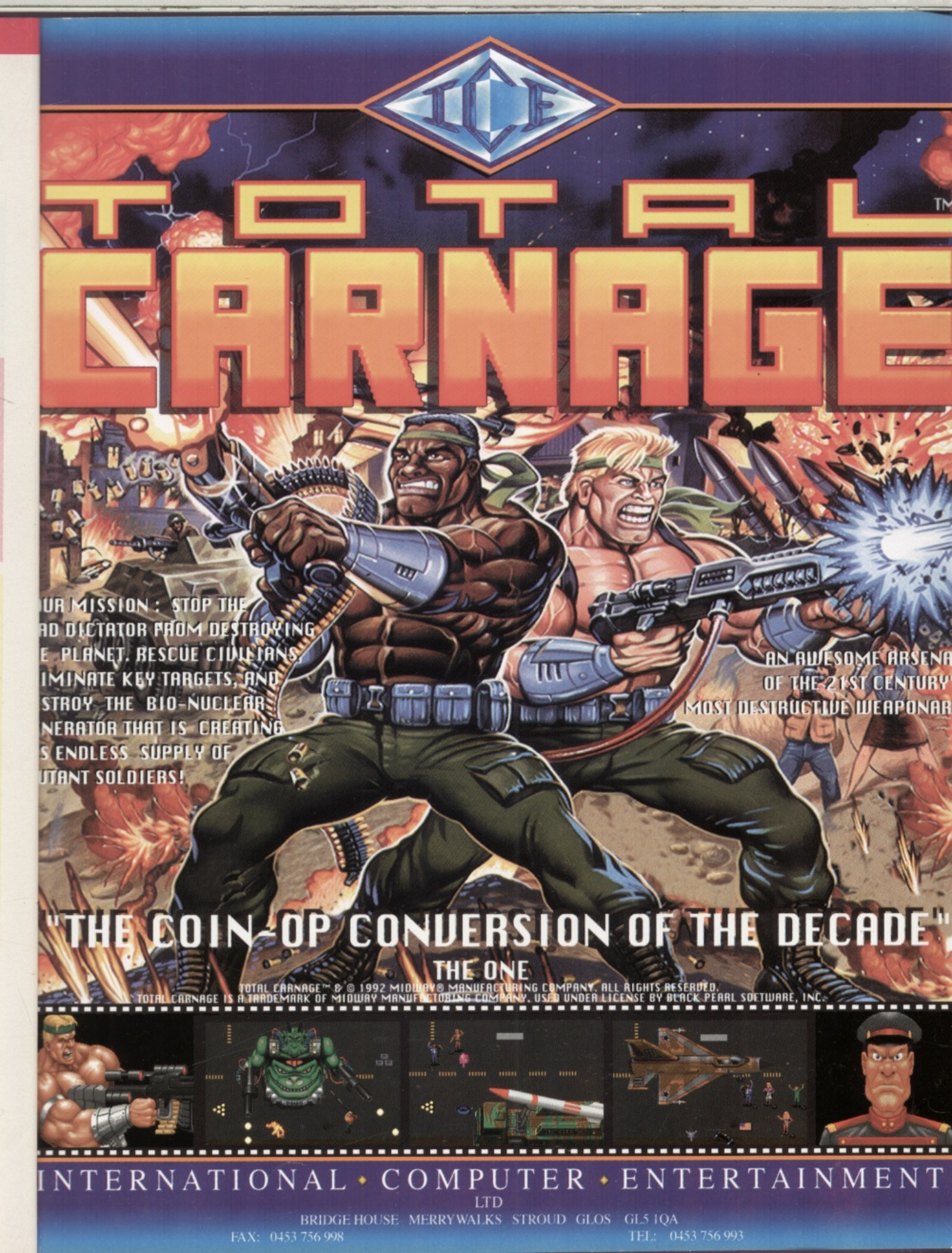
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